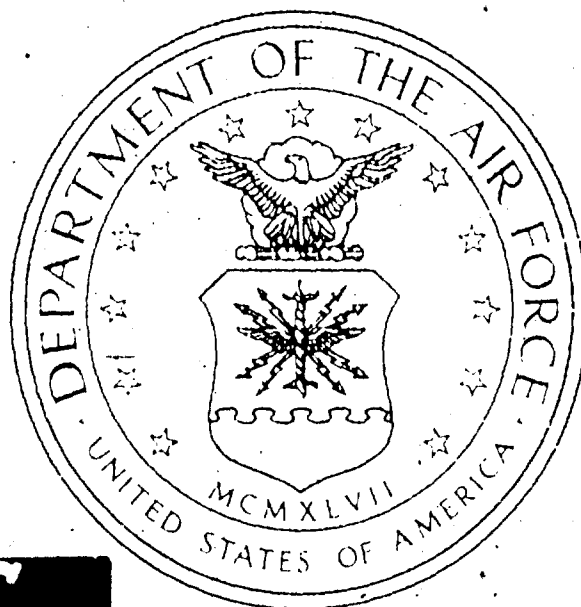


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U.S. Air Force Installation Restoration Program
Remedial Project Manager's Handbook

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**U.S. Air Force
Installation Restoration Program
Remedial Project Manager's Handbook**

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

29 JAN 1992

TO: CE

SUBJECT: Installation Restoration Program Remedial Project Manager's Handbook

TO: Handbook User

1. This handbook has been published to improve the Air Force hazardous waste cleanup process. It is a compendium of successful remediation experiences.

2. I encourage you to use this handbook to accelerate project completion and to drive down costs. Together, we need to improve our performance to meet the Air Force goal to "restore at least 10% of our hazardous waste sites annually with all sites completed by 2000."

JOSEPH A. AHEARN
Major General, USAF
The Civil Engineer

Table of Contents

	<u>Page</u>
1.0 OVERVIEW OF THE INSTALLATION RESTORATION PROGRAM (IRP)	1-1
1.1 Goals: Completing Site Cleanup and Site Closeout	1-2
1.1.1 Planning & Investigation Stages of IRP (Pre-DD/ROD)	1-4
1.1.2 Execution Stages of IRP (Post-DD/ROD)	1-6
1.2 Regulatory Review and Involvement	1-7
2.0 DESIGNATED RESPONSIBILITIES	2-1
2.1 Remedial Project Manager's Responsibilities ...	2-1
2.2 MAJCOM's Responsibilities	2-5
2.3 Service Centers' Responsibilities	2-5
2.4 Other Technical Agency Responsibilities	2-7
2.5 Regional Compliance Offices (RCO)	2-8
2.6 Defense and State Memoranda of Agreement (DSMOA)	2-8
3.0 THE IRP PROCESS AS IT RELATES TO CERCLA	3-1
3.1 Essential IRP Terms	3-1
3.2 Purpose of the IRP	3-6
3.3 Current Directives Governing the IRP	3-7
3.3.1 CERCLA Compliance	3-7
3.3.2 Compliance with Non-CERCLA Requirements	3-15
3.4 Related Regulations and Programs That May Affect IRP Management	3-18
3.5 Operable Unit Structure for Environmental Restoration	3-20
3.5.1 Designating Operable Units	3-20
3.5.2 Establishing Priorities and Schedules	3-23

**Table of Contents
(Continued)**

	<u>Page</u>
3.6 Important IRP Guidance Documentation	3-23
4.0 PROGRAMMING AND BUDGETING	4-1
4.1 RPM Responsibilities	4-1
4.2 Scoping the Project	4-3
4.2.1 Using WIM-ES	4-4
4.2.2 Using AFW-IRPIMS	4-6
4.3 Project Scheduling	4-7
4.4 Prioritization	4-7
4.5 Identifying Possible Alternatives	4-9
4.6 Cost Estimating	4-10
4.7 Funding	4-11
4.7.1 Funding Sources	4-13
4.7.2 Funding Documentation	4-13
4.7.3 Reviewing the Request for Funds	4-14
5.0 PROJECT MANAGEMENT (Getting Started)	5-1
5.1 Management Options (What Help is Available)	5-2
5.1.1 Typical Project Execution Scenario	5-8
5.1.2 Two-Step Project Execution Scenario	5-8
5.2 Techniques for Improving Execution	5-10
5.3 Activities Leading to ROD -- The IRP CERCLA Process	5-12
5.3.1 Discovery and Notification (D & N)	5-13
5.3.2 Preliminary Assessment/Site Inspection (PA/SI)	5-17
5.3.3 Remedial Investigation (RI)	5-35
5.3.4 Feasibility Study (FS)	5-51
5.3.5 Troubleshooting	5-62
5.4 Record of Decision, Decision Document	5-65
5.4.1 RPM Responsibilities	5-65

**Table of Contents
(Continued)**

	<u>Page</u>
5.4.2 ROD, DD Details	5-65
5.5 Activities Following ROD	5-70
5.5.1 Remedial Design	5-73
5.5.2 Remedial Action	5-89
5.5.3 Scoping for Post-Project Activities and Closeout	5-92
5.6 Site Closeout - THE ULTIMATE GOAL	5-97
5.6.1 RPM Responsibilities	5-97
6.0 CONTRACTS	6-1
6.1 RPM and Service Center Responsibilities	6-1
6.2 Contracting Initiation	6-2
6.3 Contract Strategies	6-4
6.4 Contract Types	6-5
6.5 Contractor Selection	6-10
6.6 Contractor Management	6-11
6.6.1 Managing Project Activities	6-16
6.6.2 Managing Contractor Products	6-16
6.7 Sources of Contracting Guidance	6-17
7.0 COMMUNITY RELATIONS	7-1
7.1 RPM Community Relations Checklist	7-1
7.2 Process Details	7-3
7.2.1 Timing of Activities	7-3
7.2.2 Planning Community Relations Efforts	7-5
7.2.3 Public Notice Requirements	7-6
7.2.4 Community Participation	7-6
7.2.5 Comment Review	7-7
7.2.6 Citizen Suits	7-7

**Table of Contents
(Continued)**

	<u>Page</u>
APPENDIX A Environmental Leadership letter 17 April 1991	A-1
APPENDIX B States Points of Contact	B-1
APPENDIX C Center for Environmental Restoration Education 4 January 1991 letter	C-1
APPENDIX D Sources of Training	D-1
APPENDIX E DSMOA/CA letter 12 July 1991	E-1
APPENDIX F IRPIMS letter 14 December 1990	F-1
APPENDIX G Form 1391	G-1
APPENDIX H Data Collection Information	H-1
APPENDIX I Administrative Record	I-1

INDEX

The Air Force Installation Restoration Program was established to evaluate and clean up sites on bases which have been contaminated with hazardous substances and wastes from past practices. The remedial project manager (RPM) is responsible for initiating and managing the projects needed to evaluate and clean up the sites.

THE SUCCESSFUL RPM

adeptly juggles many different types of responsibilities. This handbook was prepared to assist RPMs with these responsibilities. To manage projects successfully, the RPM must be able to:

INITIATE	site assessments programming and budgeting schedule preparation the Statement of Work contracting regulatory agency involvement
COMMUNICATE	with your Base Commander and MAJCOM with Base support personnel with regulators with contractors and service centers with the public
COORDINATE	Base operations project team activities community relations activities regulatory review meetings hearings personnel resources
INVESTIGATE	IRP guidance sources available management tools regulatory status of sites site contamination
REMEDiate	site contamination
EVALUATE	contractor performance project cost/schedule progress deliverables

Preamble

DELEGATE	activities to Base support staff or to service centers and contractors as needed
NEGOTIATE	RODs, FFAs site closeout

EMERGENCY REMOVAL SCENARIO

The following scenario illustrates the steps taken by an RPM faced with a newly discovered contamination problem on his Base to effect an emergency removal. You could be faced with a similar situation! The story is simplified but shows the major points of decision; the actions taken by our hypothetical RPM are reasonable ones.

Imagine you are a young RPM who has been on base for two years. You're sitting at your desk going through your mail one day when an enlisted man comes in and says that while cutting grass near the runway, he noticed something odd. As he crossed a dry drainage ditch that eventually empties into the creek further down, he was struck by the sight of liquid seeping from the sidewall. This didn't seem a likely place for a spring. On close inspection, he noticed that the liquid had a strange odor. He thought he should report this, since the Base Commander (CO) had spoken recently of the Installation Restoration Program and what was being done on the Base to clean up old spill and fire training sites.

After the young man leaves your office, you think about the layout and topography of the Base. The drainage ditch does empty into the creek. You look at the map on the wall of your office, tracing the creek south to the Base boundary. About one mile further south a small residential suburb is situated near and basically following the bank of the creek. You telephone one of the on-site engineers and set a time for him to come out and look at the site with you. Meanwhile, you check your environmental files to see if any preliminary report exists for this area. None does.

That afternoon, you and the engineer drive out to the site and find the place the enlisted man spoke of. As you near the seepage point, the engineer says it smells like an organic substance and that you need to get someone to take some samples to identify what it is. The engineer notes that the samplers should collect soil upgradient, here at the point of seepage, and downstream to see if the substance has been migrating down to the creek. He suggests also collecting samples of the surface water where the ditch meets the creek. You are worried that the little community downstream may be endangered.

Preamble

Back in your office, you call the Base Commanding Officer and MAJCOM to explain the situation and ask about funds for having samples collected and analyzed. They decide to use a Base technician to collect the samples, which they will send to a local laboratory for a quick turnaround of results. You make sure that the technician understands the proper safety procedures for handling potentially hazardous waste, and that he wears protective gloves, boots, tyvec (or equivalent) overalls, and a respirator.

Meanwhile, you enact spill response management techniques to contain the release. You tell the engineer to isolate the seep and ensure that no more of the substance enters the drainage ditch or the creek during a rain event. Base maintenance personnel supervised by the engineer install a covered sump into the ditch to collect the seepage, again, following appropriate health and safety procedures. They dedicate a pump to transfer the liquid collected in the sump to a covered drum.

The results come back from the lab; they show that the substance seeping from the bank of the drainage ditch contains 10% trichloroethylene (TCE) (a solvent) and unspecified petroleum compounds. The soil ditch sample collected upgradient showed no contaminants, the downgradient soil samples contained 50 ppb TCE, and the sample collected from the creek water had a TCE concentration of 5 ppb. You are now sure you have a problem that could affect both people on Base and in the community downstream, where children play in and around the creek, and where livestock and wildlife are also exposed. You call the Base Judge Advocate (JA) and the public affairs (PA) coordinator to get advice. The JA tells you to notify state and federal regulators and tell them that the Base has isolated the problem and is conducting a preliminary risk assessment.

Your choices at this point are numerous. You have a problem which must be dealt with swiftly. We will leave it to you to imagine any future remediation and monitoring work that might be conducted at this site. Rely on the rest of the manual to answer your questions about this and other possible IRP scenarios. We have designed the manual to provide advice and information on the many different aspects of IRP activities as cogently and concisely as possible.

**IF YOU ARE THE RPM AND YOUR
QUESTION IS...**

Go to:



How do I reach closeout?

Section(s)
1.1, 3.2, 5.6



How do I begin assessing
the environmental situation
at my Base?

Section(s)
1.1, 5.3.1



What types of assessment
information are needed?

Section
5.3.2



What should I do if a
serious environmental or -
health threat exists on my
Base?

Section
5.3.2

Go to:



When, where, and why do I
interact with regulators?

Section(s)
1.2, 5.2, 5.3, 5.4,
5.5.1



How do I complete the
investigative phase?

Section(s)
1.1, 5.3, 5.4



What are the feasible
response options for my
environmental problem?

Section(s)
4.5, 5.3.2, 5.5
Table 5-6



How do I clean up the
problem?

Section
5.5

Go to:



What kinds of expertise are needed to address my environmental problems?

Section 5.1, Table 5-1



Can I handle my Base's environmental needs with Base personnel or do I need help from a service center?

Section 5.1, Tables 5-3 & 5-4



How do I reach an ROD?

Section(s) 1.1, 3.2, 5.3, 5.4



How can I access the right support -- whether contractor, service center, or Base personnel?

Section 5.1, Appendix B Appendix H

Go to:



When, why, and how do I
interact with the public?

Section(s)
2.1, 5.5, 7



What sources of guidance
are available?

Section(s)
3.6, 5.1,
Table 5-2,
References



Where do I fit into the Air
Force Environmental
Program?

Figure 2-1,
Figure 2-2
Section
2-1,
Figure 4-1,
Figure 5-17

LIST OF ACRONYMS

AAMRL	Armstrong Aerospace Medical Research Laboratory
ACASS	Architect-Engineer Contract Administration Support System
ACL	Alternate Concentration Limits
A-E	Architect-Engineering firm for investigation, planning, and/or design activities
AF	Air Force
AFCEE	Air Force Center for Environmental Excellence
AFCESA	Air Force Civil Engineering Support Agency
AFIRM	Air Force Installation Restoration Management
AFIT	Air Force Institute of Technology
AFLC	Air Force Logistics Command
AF/OEHL	Air Force Occupational and Environmental Health Laboratory
ARARs	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency for Toxic Substances and Disease Registry
BEE	Bioenvironmental Engineering
BOA/TOA	Basic Ordering Agreement/Task Ordering Agreement
BP	Base Planning
CA	Cooperative Agreement
CCASS	Construction Contract Appraisal Support System
CDAP	Chemical Data Acquisition Plan
CE	Civil Engineering
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-term Environmental Action Navy

List of Acronyms

CMI	Corrective Measures Investigation
CMS	Corrective Measures Study
COR	Contracting Officer's Representative
CORA	Cost of Remedial Action
CPAF	Cost Plus Award Fee
CPFF	Cost Plus Fixed Fee
CPIF	Cost Plus Incentive Fee
CRC	Coastal Resource Coordinator
CRP	Community Relations Plan
DASD(E)	Deputy Assistant Secretary of Defense (Environment)
DCS	Deputy Chief of Staff
DD	Decision Document
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DERPMIS	Defense Environmental Restoration Program Management Information System
DLA	Defense Logistics Agency
D&N	Discovery and Notification
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DPM	Defense Priority Model
DQO	Data Quality Objectives
DSMOA	Defense-State Memorandum of Agreement
EA	Environmental Assessment
E/C	Engineering/Consulting Firm

List of Acronyms

ECAMP	Environmental Compliance Assessment and Management Program
EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EMO	Environmental Management Operations
EO	Executive Order
EPA	Environmental Protection Agency
EPC	Environmental Protection Committee
EPI	Environmental Priorities Initiative
ESO	Environmental Support Office
FFA	Federal Facility Agreement
FFP	Firm Fixed Price
FONSI	Finding of No Significant Impact
FPAF	Fixed Price Award Fee
FPEPA	Fixed Price with Economic Price Adjustment
FPIF	Fixed Price with Incentive Firm
FPLOE	Fixed Price, Level of Effort
FS	Feasibility Study
GW	Groundwater
HARM	Hazard Assessment Rating Methodology
HAZWRAP	Hazardous Waste Remedial Action Program
HMTC	Hazardous Materials Technical Center
HRS II	Hazard Ranking System II
H&S	Health and Safety
HSD/YAQ	Human Systems Division/Environmental Restoration (now part of AFCEE)
HSWA	Hazardous and Solid Waste Act
IAG	Interagency Agreement

List of Acronyms

IGCE	Independent Government Cost Estimate
IRA	Interim Remedial Action
IRP	Installation Restoration Program
AFW-IRPIMS	Air Force Wide-Installation Restoration Program Information Management System
IRTCC	DoD Installation Restoration Technology Coordinating Committee
JA	Judge Advocate
LH	Labor Hours
LTM	Long-term Monitoring
LTO	Long-term Operations
M-CACES	Microcomputer Aided Cost Estimating System
MCL	Maximum Contaminant Level
MIS	Management Information System
NAVFACENGCOM	Naval Facilities Engineering Command
NCP	National Contingency Plan
NEESA	Navy Energy and Environmental Support Agency
NEPA	National Environmental Policy Act
NFAP	No Further Action Planned
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priority List
O&M	Operation and Maintenance
OPR	Office of Primary Responsibility
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PAC	Public Affairs Coordinator

List of Acronyms

PA/SI	Preliminary Assessment/Site Inspection
PC	Personal Computer
PCB	Polychlorinated biphenyl
PDR	Preliminary Design Report
PPA	Post Project Activities
PRP	Potentially Responsible Party
PSC	Potential Source of Contamination
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RACER	Remedial Action/Cost Estimating and Risk Model
RCO	Regional Compliance Office
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SAF/MIQ	Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health)
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SHA	Site Health Assessments
SOW	Statement of Work
SPCC	Spill Prevention, Control, and Countermeasure
SSHP	Site Safety and Health Plan

List of Acronyms

SWMU	Solid Waste Management Unit
T&M	Time and Materials
TAG	Technical Assistance Grant
TRC	Technical Review Committee
TSCA	Toxic Substances Control Act
USACE	US Army Corps of Engineers
USDL	United States Department of Labor
UST	Underground Storage Tank
WIMS-ES	Work Information Management System- Environmental Subsystem

1.0 OVERVIEW OF THE INSTALLATION RESTORATION PROGRAM (IRP)

The policy of the USAF IRP is to "remediate all sites that pose a threat to public health, welfare, or the environment, regardless of whether they are included on the National Priorities List (NPL)". You can find a detailed discussion of the policy and its evolution in the Air Force Installation Restoration Program Management Guidance, or "White Book" (Department of the Air Force, 1989). The objectives for addressing this policy include:

1. Identifying sites;
2. Investigating threats;
3. Cleaning up sites; and
4. Closing out IRP sites.

To achieve these objectives, you must evaluate the IRP remedial response alternatives using nine evaluation criteria. These criteria are as follows:

1. Cost;
2. Protection of human health and the environment;
3. Short-term effectiveness;
4. Compliance with applicable or relevant and appropriate requirements (ARARs);
5. Long-term effectiveness and permanence;
6. Reduction of toxicity, mobility, or volume;
7. Implementability;
8. State acceptance; and
9. Community acceptance.

As the Remedial Project Manager, you must recognize that completing Site Cleanup and Site Closeout are your ultimate goals.

The Air Force Chief of Staff's goal is to "complete cleanups of the past. Restore at least 10% of all hazardous waste sites annually with all sites completed by 2000." The term "complete" in this statement equates to the AF Sites "Finished" Scorecard. This does not include long-term monitoring and may not occur at the same time as

"closeout." (Refer to AF/CC 17 Apr 91 letter in Appendix A and discussion of "closeout" in Section 3.)

1.1 Goals: Completing Site Cleanup and Site Closeout

You can achieve Site Closeout by a variety of paths. The path you take (i.e., the steps in the IRP process that you must perform) depends on the characteristics of, and information available about, your particular site. Figure 1-1 divides the IRP process steps into "Planning & Investigation," "Decision," "Execution," and "Closeout" stages. The Planning & Investigation stage culminates in a Decision Document or Record of Decision (DD or ROD). The Execution stage proceeds after the DD/ROD.

During the "Planning & Investigation" stage, you gather historical, analytical, geological, and other information about your site and arrive at feasible solutions. The amount and types of information needed are dictated by factors such as the nature and extent of contamination, potential human exposure, and governing regulations. Specifically, you must gather enough information to satisfy the requirements of an ROD, DD, or federal facilities agreement (FFA) between the base and regulatory agencies. An ROD or DD contains the official statement of remedial actions required for a site. An FFA is a legal agreement governing the CERCLA/RCRA administrative process for cleanup. Each of these documents contains a statement of the Air Force's position on the status and future activities at the site. **The concurrence and objections of the regulatory agency that has jurisdiction must be considered.**

It is important to understand that cleanup activities can't begin until you obtain an ROD or DD. An ROD is required at NPL sites, while a similarly formatted DD is needed for non-NPL sites. FFAs are not normally required at non-NPL sites, but should be considered at all sites as an effective tool to document the framework for site cleanup. The usefulness of an FFA at non-NPL sites depends on state and Federal regulatory requirements and involvement.

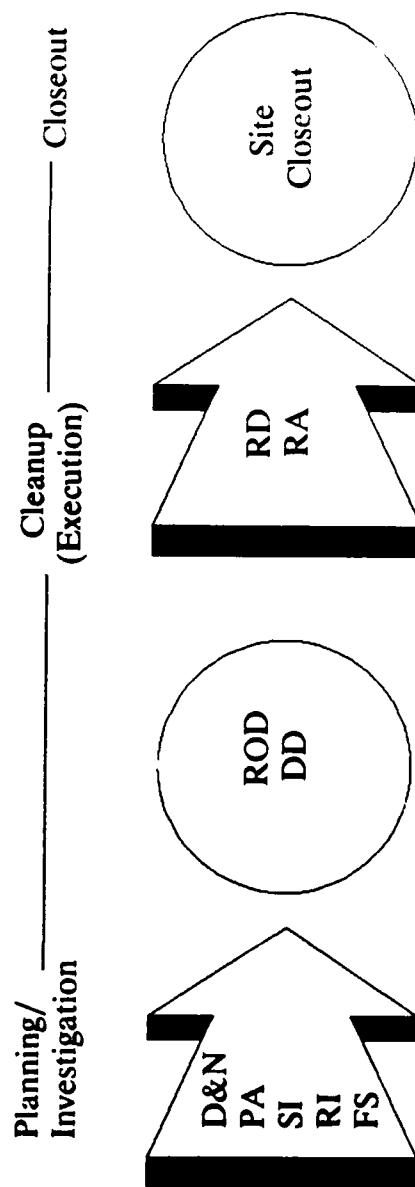


Figure 1-1
IRP Response Action Options

During the "Execution" or cleanup stage of the IRP process, you conduct or supervise the design and implementation of site cleanup activities presented in the ROD. Completion of the remedial design and remedial action steps leads you to your ultimate goal--Site Closeout.

The following subsections briefly define the individual steps within the "Planning & Investigation" and "Execution" stages.

1.1.1 Planning & Investigation Stages of IRP (Pre-DD/ROD)

Discovery and Notification (D&N)

The Discovery and Notification (D&N) procedures initiate the IRP for the site. The D&N step characterizes releases according to information obtained during record searches and reports releases in excess of reportable quantities to the National Response Center, the Governor of the state, and the EPA region.

Preliminary Assessment/Site Inspection (PA/SI)

The PA is the initial evaluation of existing information. Its purpose is to determine whether a release requires further investigation. The PA describes the source and nature of releases, evaluates threats to the public health and welfare or the environment, and recommends subsequent steps for the IRP process.

After coordinating the details of a planned PA with the appropriate state and federal regulatory agencies, you must collect enough data to complete a revised HRS scoring package. The revised HRS is a scoring system used by EPA to rate military and other sites for migration, direct contact, and fire/explosion potential.

The Site Inspection (SI) satisfies data requirements for revised HRS scoring that are not met in the PA step, characterizes any release(s) for effective initiation of the Remedial Investigation/Feasibility Study (RI/FS), and determines the next appropriate step. The SI provides the first opportunity to collect more detailed site characterization data.

Remedial Investigation (RI)

The RI determines the nature and extent of the contamination and the nature and extent of any threat to human health and the environment. A comprehensive sampling and analysis plan must be prepared and enacted so that enough data to make decisions about site and waste characteristics, potential hazards, and applicable treatment options can be generated. When practical, the RI and FS activities overlap.

Feasibility Studies (FS)

During the FS step, potential remedial alternatives to address any threats to human health and the environment are developed and evaluated. Treatability studies can be performed to determine the cost and efficiency of the action alternatives. Other FS activities include selecting a cost-effective remedial action alternative that mitigates the threat and documenting the Remedial Design/Remedial Action (RD/RA) plan for review by the public and regulators.

Record of Decision or Decision Document (ROD/DD)

After the public and appropriate regulators review the remedial alternative proposed during the FS step, the selected alternative is revised as needed and documented in a Record of Decision (ROD) for NPL-site remediation or in a similarly formatted Decision Document (DD) for non-NPL sites, interim operable units, or NPL-site removals. RODs and DDs are submitted to the Installation Commander for approval and signature.

Interagency Agreement/Federal Facility Agreement (IAG/FFA)

The purposes of an IAG, such as an FFA, are to:

- Ensure that environmental impacts associated with past and present site activities are thoroughly investigated, and that appropriate remedial action is

taken as needed to protect public health, welfare, and the environment;

- Establish a procedural framework and schedule for developing, implementing, and monitoring response actions in accordance with CERCLA, the NCP, Superfund policy and guidance, RCRA guidance and policy, and applicable state laws; and
- Facilitate cooperation, exchange of information, and participation of the Air Force, the EPA, and appropriate state agencies in such actions.

FFAs are required by Section 120(e)(1) of CERCLA for NPL sites.

1.1.2 Execution Stages of IRP (Post-DD/ROD)

Remedial Design (RD)

The RD stage begins after the optimum remedial design alternative has been selected and documented in the ROD. The RD includes establishing information requirements, obtaining design information from the base, and discussing the design concept with a contractor. For NPL sites, a Preliminary Design Report must be prepared and approved by the appropriate regulatory authority before plans and specs can be prepared. A construction cost estimate, Quality Assurance Project Plan (QAPP), and other plans for the subsequent RA usually accompany the final design plans and specs. A Remedial Design Fact Sheet also must be made available.

Remedial Action (RA)

Remedial action is the implementation of the cleanup design. This step includes competitive bidding, contract award, construction oversight, and evaluation of contractor performance. A site is "finished" or "complete" when the remedial treatment system is constructed and fully operational.

Post-Project Activities

Post-project activities (PPA) include ongoing treatment and cleanup operations after site remediation is complete. This stage is only present in actions, such as groundwater treatment, that require operation time to reduce contaminants to applicable and acceptable cleanup standards (i.e., ARARs).

Site Closeout

Closeout refers to the point in the IRP process when the regulating authority no longer considers a site to be a threat to human health or the environment. A site can be closed out at any point during the remedial investigation, characterization, monitoring, or treatment process. A document specific to the governing regulation must be prepared (ROD for NPL or DD for non-NPL sites). Regulatory concurrence must be obtained for NPL sites, while for non-NPL sites, regulatory concurrence is recommended.

1.2 Regulatory Review and Involvement

One of your first tasks as RPM is to identify which federal, state, and local regulatory agencies have jurisdiction over IRP activities at your base. Response actions at non-NPL sites must conform to state laws; activities at NPL sites must comply with EPA regulations. For ALL sites, you need to review notification, public participation, and state and federally defined applicable or relevant and appropriate requirements (ARARs). An ARAR may be either a federal requirement or any state-promulgated requirement that is legally applicable, or relevant and appropriate to the contaminant, location, or other site circumstances. To avoid duplication of effort or delay, you and your base legal staff should work closely with EPA and state regulators to determine what ARARs apply to you. Guidance is available in CERCLA Compliance with Other Laws Manual: Interim Final Part I (EPA, 1988) and Part II (EPA, 1989).

Establishing contact and developing rapport with the regulators in charge of your site is essential, whether you're dealing with local, state, or federal representatives. Figure 1-2 lists the locations and phone numbers of federal offices. If IRP activities have

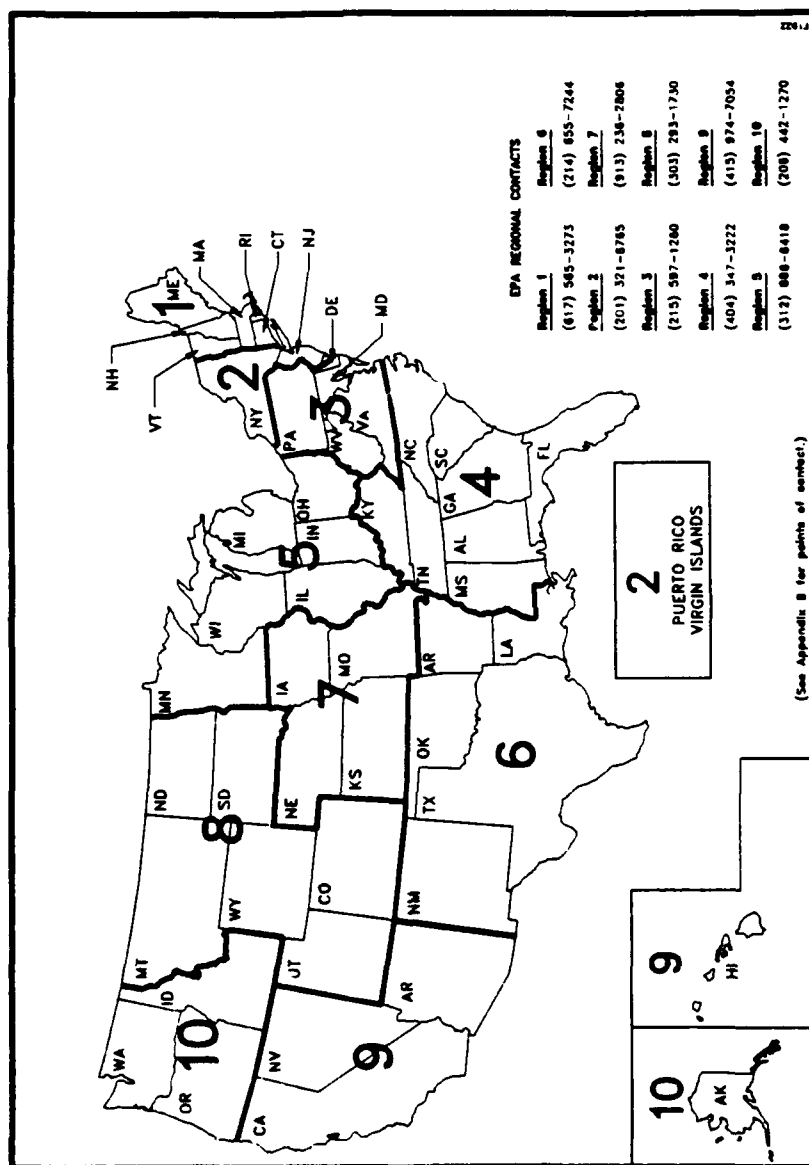


Figure 1-2
EPA Regional Offices
(See Appendix B for points of contact.)

Overview of the IRP

been conducted at other bases in your state, contact your counterparts at those bases to get the names and numbers of specific regulators with whom you may be dealing.

2.0 DESIGNATED RESPONSIBILITIES

Figure 2-1 illustrates the relation of the RPM to the other players in the IRP process. Figure 2-2 shows areas of RPM responsibility.

2.1 Remedial Project Manager's Responsibilities

As RPM, you have responsibilities in many areas:

- Communication
- Funding
- Programming and Budgeting
- Contracting
- Coordinating Site Work
- The Administrative Record
- Office Correspondence
- Data Management
- Reporting
- Health and Safety
- Community Relations
- Developing Personnel Resources

Generally, you are the primary contact for all response actions. You coordinate, direct, and review the work of all individuals involved. You are also responsible for reporting upward along the chain of command.

The officials of lead agencies require your recommendations for response actions. You participate in most decisions. It is through you that the Air Force complies with the laws, regulations, court orders, and work plans required by regulatory agencies.

Communication involves coordinating with Air Staff, MAJCOM, the installation commander, the Environmental Protection Committee (EPC), service centers, EPA, state and local regulatory agencies, contractors, and the community. Keep the public informed about Base IRP activities (see Section 7).

Funding sources include the Defense Environmental Restoration Account (DERA) and Operation and Maintenance (O&M) Base funds.

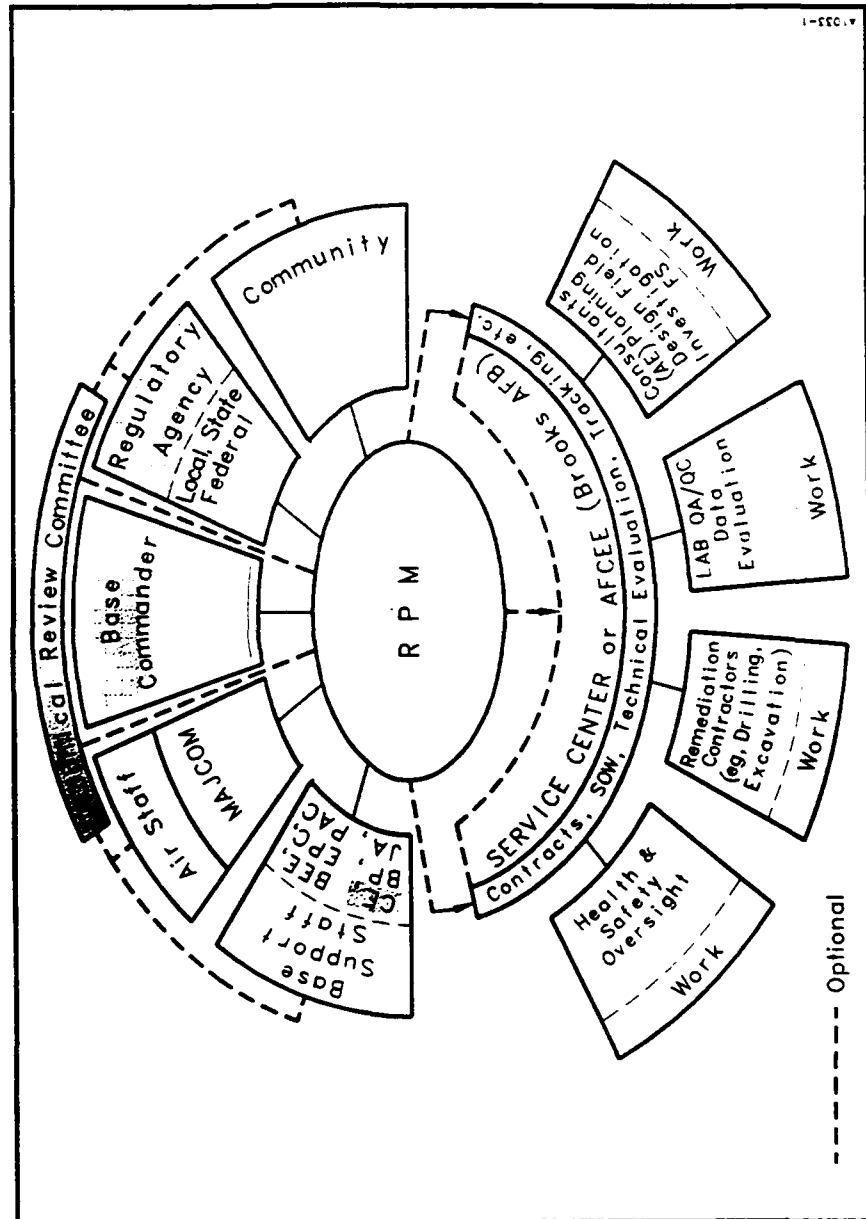


Figure 2-1
Relation of RPM and Service Center Responsibilities

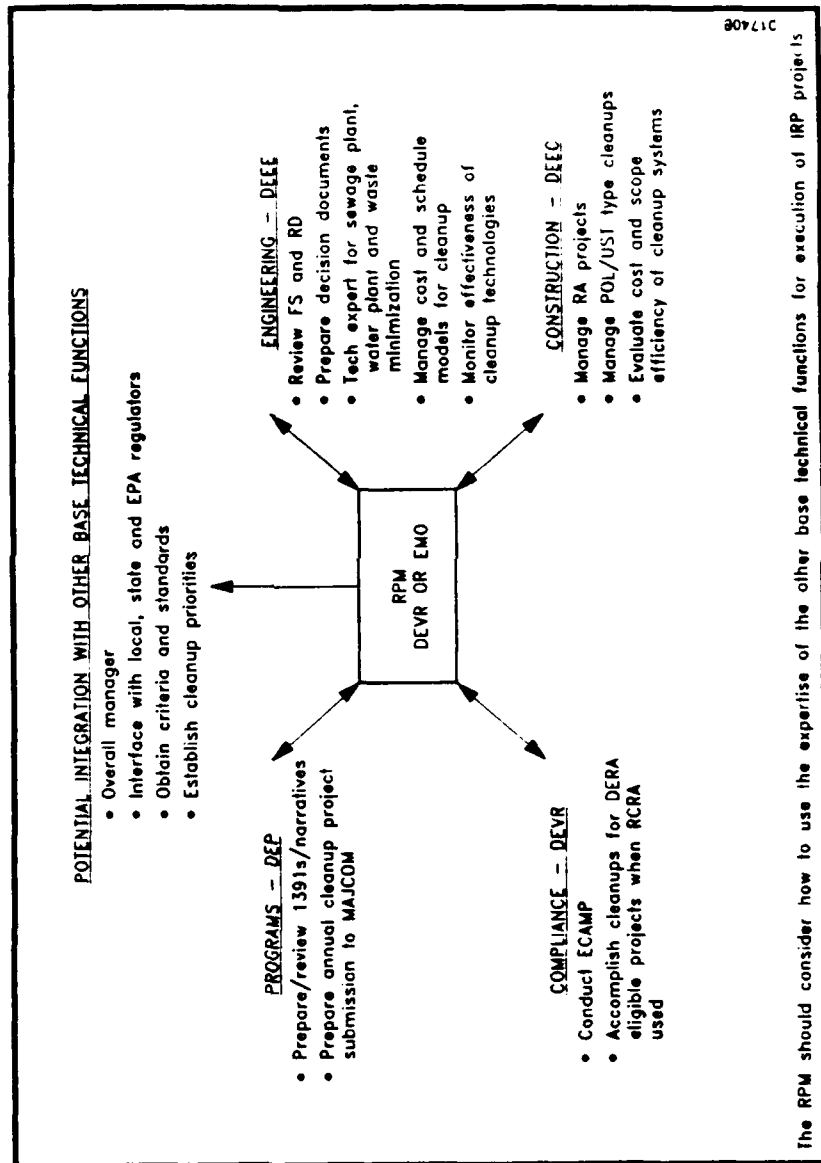


Figure 2-2
Areas of RPM Responsibility

Designated Responsibilities

Programming and Budgeting - Realistic programming and budgeting can help ensure the smooth execution of the IRP by ensuring that funding and labor are available, and that there is an agreement about the actions taken.

Contracting must be performed in accordance with the schedules in the record of decision and the interagency agreement. Since at a given site you are likely to be dealing with several contracts and contractors, realistic planning, programming, and budgeting will help you obtain the necessary funding, labor, and concurrence on proposed actions. Contracting is discussed further in Section 6.

Coordinating Site Work - The RPM needs to inform the service center representative and contractors of Base rules and procedures that will affect on-site work.

The Administrative Record is a complete record of all community relations actions and responses in support of the IRP. It also contains the legal record of all documents and information consulted in making the decision contained in the ROD or DD. It must be kept up to date.

Office Correspondence - Keep careful records and make sure that files are kept up to date and are maintained for future needs.

Data Management and evaluation can be provided by an engineering/consulting (E/C) firm or service center. It is crucial that the Base be able to defend its decisions by maintaining the applicable and necessary data.

Reporting - The RPM is responsible for maintaining all site activity reports and records such as documentation of the contractors' work, the sampling and analysis and site health and safety plans, etc.

Health and Safety - The service center or E/C firm can help oversee on-site health and safety during program implementation. A site health and safety plan must be part of the project records.

Community Relations - The RPM should be closely involved with all public relations activities and act as spokesperson,

since he or she is directly responsible for all IRP activities occurring on the Base.

Developing Personnel Resources (i.e., hiring or training) in the areas of community relations, health & safety, engineering, and the environment is crucial to your success.

2.2 MAJCOM's Responsibilities

The MAJCOM/DE is responsible for overseeing the execution of the IRP at all installations within their respective commands. Their primary responsibilities are:

1. To coordinate their program with other Air Force elements and with regulatory agencies;
2. To identify the appropriate person (specifically, the RPM) to execute response actions at a site or installation, and to assign the appropriate authorities and responsibilities to the RPM;
3. To schedule, budget, and set priorities for resources for the program; and
4. To establish project goals, milestones, and project completion schedules.

MAJCOM is the focal point between the Base and the Air Staff regarding the prioritization and funding of IRP activities. Some MAJCOMs are heavily involved in project management and keep a staff of RPMs to work on IRP issues for the Base. Other MAJCOMs choose to delegate project management activities to the Base.

2.3 Service Center Responsibilities

Service centers are a primary source for assistance in conducting IRP work if you lack sufficient personnel or expertise at the base or command level.

Designated Responsibilities

Service centers provide the full range of support for IRP activities. They have large technical, legal, contracting, and contract management staffs that can provide the bases and MAJCOMs support. Most also provide Quality Assurance/Quality Control.

Centers accomplish most of their IRP planning and design work with E/C services contracts and charge the client a fee for managing and administering contracts. Normally, this fee is a percentage of the contract. Centers also contract cleanup work and provide construction management services during the cleanup process.

The service centers available to you include:

- Air Force Center for Environmental Excellence (AFCEE) (Brooks AFB, TX) for technical consultation, field monitoring, sample analysis support, and assistance in completing the site closeout documentation. It has developed programs on site ranking and operates the technical information management system (IRPIMS) for Air Force IRP sites.
- U.S. Army Corps of Engineers (USACE) (Omaha, NE; Tulsa, OK; Sacramento, CA; Baltimore, MD; Huntsville, AL) for technical consultation, contracting, costing, and DOD-State Memoranda of Agreement (DSMOA).
- U.S. Naval Facilities Engineering Command (NAVFACENGCOM) (Alexandria, VA)
- Hazardous Waste Remedial Actions Program (HAZWRAP), Martin Marietta Energy Systems, Inc. (Oak Ridge, TN)
- Tennessee Valley Authority (TVA) (Knoxville, TN)

2.4 Other Technical Agency Responsibilities

The Air Force Installation Restoration Management (AFIRM) Conference provides AF-wide technical review, technical support, and information dissemination functions.

The Air Force Civil Engineering Support Agency (AFCESA) is the OPR for Air Force Engineering and Services R&D efforts for IRP.

Air Force Institute of Technology (AFIT), Wright-Patterson AFB, OH, provides continuing education and graduate programs. (See 4 January 1991 letter, Appendix C, and Appendix D, Sources of Training)

The Armstrong Aerospace Medical Research Laboratory (AAMRL) can provide chemical, biological, risk assessment modeling, and toxicological analytical support to the IRP program.

The Deputy Assistant Secretary of Defense (Environment) DASD(E), Washington, DC, is a source for information on policy issues.

The DOD Installation Restoration Technology Coordinating Committee (IRTCC) can provide information regarding research and development.

The Naval Energy and Environmental Support Activity (NEESA), Port Hueneme, CA, is a contact for the Navy research and development program, and current technology.

The Army Installation Restoration Program, U.S. Army Toxic and Hazardous Materials Agency (CETHA), Aberdeen Proving Ground, MD, is a source of information for the Army research and development program and RI/FS guidance.

Again, as shown in Figure 2-1, the service centers can accomplish much, but not all, of the work required to carry out an IRP project. They can conduct the site work themselves or contract with subcontractors. The RPM, however, is responsible for dealing with the

regulatory agencies, the Base support staff, MAJCOM, and for handling community relations.

2.5 Regional Compliance Offices (RCO)

RCOs may act as a liaison between the Air Force and state or federal regulators. They provide an Air Staff presence at regional regulatory levels, foster external communications between the Air Force and the regulatory community, and provide program management and oversight. RCO representatives meet regularly with state and federal authorities and regularly advise Air Force organizations about matters affecting standards, plans, programs, policies, and budgets.

2.6 Defense and State Memoranda of Agreement (DSMOA)

As specified in DOD Components' Cooperation with the States for Cooperative Agreements on Site Cleanups (DASD(E), 18 July 1989), it is DOD policy to enter into a DSMOA to reimburse costs associated with a State providing services in direct support of DERA funded activities at DOD installations. A notice of fund availability and application instructions for DSMOAs was published in the Federal Register (54(144): 31358) on 25 July 1989. According to this notice, the following State services qualify for reimbursement:

- Technical review, comments, and recommendations on all documents or data submitted to the State;
- Identification of ARARs;
- Site visits to review DOD response actions;
- Support and assistance in conducting public participation requirements;
- Participation in Technical Review Committees;
- Preparation and administration of a Cooperative Agreement to implement the DSMOA: and

- Additional services that may be set forth in the DSMOA.

DOD will fund States for services they provide to Components' DERP activities up to a "lifetime cap" amount of one percent of the estimated total costs for all DERA funded site work conducted in the State since October 17, 1986, until completion of DERA funded work (or a total of \$50,000, whichever is greater). Each State can receive up to a maximum of 25% of the lifetime cap amount in any one year. DSMOAs do not cover the costs of services rendered prior to October 17, 1986; activities associated with DERP at formerly owned/used properties or third party sites; and activities funded from sources other than DERA.

A signed DSMOA represents a commitment between the DOD and the State to cooperate in the cleanup program and also establishes the procedural framework for payment of state services. A signed DSMOA, although a necessary prerequisite, is not a funding instrument. A Cooperative Agreement (CA) that authorizes fund transfers must also be finalized with each State which has entered into a DSMOA. DOD's intention is to sign one CA with each State to cover State support services for cleanup activities at all installations in the State as they are listed in Appendix A of a DSMOA.

The DSMOA does not remove the need for DOD to have IAGs or FFAs to cover the cleanup process at NPL sites or site-specific arrangements at non-NPL sites. In accordance with existing policy, DOD Components should continue to negotiate FFAs for NPL sites. States should be involved in these agreements if possible. Site-specific arrangements are best determined at the installation level utilizing the Technical Review Committee. (Refer to Appendix E for more information.)

3.0 THE IRP PROCESS AS IT RELATES TO CERCLA

Policy established by the Installation Restoration Program (IRP) must be consistent with the guidelines, rules, regulations, and criteria established by EPA for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). If the Resource Conservation and Recovery Act (RCRA) or specific state laws apply to your IRP site, those additional requirements also must be satisfied. The terminology and structure of the IRP have evolved to ensure consistency with CERCLA.

The Department of Justice has determined that NEPA does not apply to CERCLA actions. Therefore, components are no longer required to comply with NEPA while undertaking a cleanup. The Deputy Assistant Secretary of Defense (Environment) [DASD(E)] however, believes that certain features of the NEPA process, not specifically required by the NCP, provide valuable information for decision makers (i.e., effects on cultural/natural resources). As the RPM, you must document that your selected response actions for contamination will not significantly impact cultural/natural resources in the area. Cultural resource categories that need investigation and documentation include anticipated impacts on local population, historical resources, and local economy. Natural resource categories that need investigation and documentation include anticipated impacts on threatened or endangered wildlife and plant species.

3.1 Essential IRP Terms

The Installation Restoration Program has its own vocabulary. Many of its terms mean something completely different in everyday life and in other programs.

(For other terms, refer to the "List of Acronyms" section at the front of this handbook.)

Applicable or relevant and appropriate requirements (ARARs) are federal and state (and sometimes local, e.g.,

air quality) laws that must be considered when choosing removal and remedial actions.

A baseline risk assessment provides an evaluation of the potential threat to human health and the environment in the absence of any remedial action. It provides the basis for determining: whether remedial action is necessary; the justification for performing remedial actions; and the basis for a finding of imminent and substantial endangerment of public health or the environment.

Control measures are management methods and technologies that are applied for controlling and cleaning up hazardous waste sites (e.g., excavation, pump and treat, vapor extraction).

A decision document records significant decisions, such as the selection of a remedial action, for non-NPL sites, operable units, or NPL-site removals.

Facility is defined by CERCLA and can refer to an entire military installation, to buildings or utilities there, or to a location where there are hazardous substances. This term can be ambiguous. Therefore, "installation," "site," or "solid waste management unit" (defined below) should be used.

A feasibility study is an investigation to identify viable remedial alternatives and to determine the optimum remedial action at a given site or OU.

Federal Facility Agreements (FFA) required by Section 120(e)(1) of CERCLA for NPL sites have the following purposes:

- To ensure that the environmental impacts associated with past and present activities at the site are thoroughly investigated, and that appropriate remedial action is taken as necessary to protect public health, welfare, and the environment.

- To establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at the site in accordance with CERCLA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy, and applicable state laws.
- To facilitate cooperation, exchange of information, and participation of the Air Force, the EPA, and appropriate state agencies in such actions.

Installation refers to the base and associated real properties.

The Installation Restoration Program (IRP) itself was established to identify, assess, investigate, and clean up hazardous waste at disposal sites used in the past. The IRP is one of the elements making up the Defense Environmental Restoration Program (DERP). Federal programs such as these are discussed further in Sections 3.3 and 3.4.

Preliminary assessment/site inspection under CERCLA is an investigation to collect and evaluate information on the site to determine if there are potential impacts to human health or the environment that warrant further study. The main difference between the PA and SI is the level of investigation detail. For example the SI may include additional investigation techniques such as on-site field inspection and sampling.

A record of decision is a public document used to explain the remedial alternative selected for an NPL site.

A remedial design is a set of plans and specifications prepared based on the optimum remedial alternative identified in the feasibility study.

A remedial investigation is a field investigation to characterize the quantity, concentration, location, and extent of contamination at a site or OU.

A response or response action can entail one of four things:

1. Removal;
2. Remedial action;
3. Remedial action process; or
4. Operable unit.

The definition of response encompasses any investigation, evaluation, decision-making, or implementation step.

Removals occur if the following criteria are met:

1. An imminent threat to human health or the environment exists (when criteria defining human health are exceeded, the threat is imminent);
2. The source of contamination can be removed effectively; or
3. Access to contamination can be limited (human exposure is substantially reduced).

Remedial actions are defined by CERCLA as the measures taken to clean up a site (e.g., to pump and treat contaminated groundwater).

An operable unit (OU) is defined by the NCP and the AF as a discrete portion of a remedial response. It is a part of a remedial action that can be implemented by itself (e.g., groundwater cleanup).

A service center is an organization that can provide IRP technical expertise and contract management support.

A site is defined by the NCP as an area where hazardous substances have been deposited, stored, disposed of, or placed, or have otherwise come to be located. A site is the basic unit for planning and implementing "response actions."

Closeout of a site equates to "no further action planned" (NFAP). An assessment of "no further action planned" is based on: no contamination found/remains, insignificant levels of contamination found/remain, or low levels found/remain but do not pose a significant health or environmental risk. A site closeout can occur during any stage of the IRP except design, depending on the particular site and its characteristics. Regardless of when closeout occurs, the cleanup process must be accompanied by appropriate documentation.

"Sites finished" is the Air Force measure of merit for the IRP. The Air Force has chosen to use "sites finished" rather than "closeout" as its measure of merit because actual site closeout for long-term operations (e.g., pump and treat systems or maintenance) may not be possible for many years even though the remediation work is in place. The term "sites completed" in the AF/CC letter, 17 April 91, should be interpreted to mean "sites finished."

Solid waste management unit (SWMU) is defined in proposed RCRA regulations as any discernable unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. SWMUs are identified during a RCRA facility assessment at installations seeking a RCRA permit. SWMUs that are active RCRA units are typically not eligible for IRP funding and management (see HQ USAF Annual Guidance letter for IRP eligibility).

A Technical Review Committee (TRC) provides relevant state and local authorities the opportunity to participate in planning and selecting the remedial action, including the review of all applicable data, studies, reports, and action plans. Establishment of a TRC helps meet the requirement of CERCLA Section 120(f). A TRC usually includes representatives from the AF, regional EPA, and the community involved. Appropriate state and local regulatory or elected officials and a recorder (often the Base CE) are also TRC members.

3.2 Purpose of the IRP

The IRP was established to identify, evaluate, investigate, and clean up hazardous substances or wastes used at sites in the past. The purpose is to protect public health and the environment. Sites that do not threaten public health or the environment should be closed out. Keep in mind that site cleanup and closeout are your ultimate goals.

A justifiable site closeout decision can be based on any one of the steps in the IRP process:

- | | |
|--------------|--|
| PA | On the basis of a preliminary assessment: when no evidence is collected indicating that a site has released hazardous waste to the environment and indicating no significant environmental or human impact; |
| SI/RI | On the basis of a site inspection or remedial investigation (i.e., monitoring or modeling activities): when there is no possibility of direct contact, natural resources impacts, or of fire or explosion, <u>and</u> when soil, sediment, water and air samples show that no hazardous substances will migrate from the site; on the basis of a public health evaluation or baseline risk assessment: when the conclusion is reached that no significant threat to public health or the environment exists; |
| FS | On the basis of a feasibility study: when site closeout is the selected alternative; and |

RA At the end of monitoring, removals, or remedial action.

When a feasibility study results in the selection of site closeout or any other alternative, it must be documented in a record of decision (ROD) (NPL sites) or a decision document (DD) (non-NPL sites). Detailed descriptions on content of RODs and DDs is included in Section 5. RPMs are responsible for the ROD/DD submittal and content.

3.3 Current Directives Governing the IRP

The IRP is governed primarily by two federal laws, two executive orders, and internal Air Force guidance documents. Figure 3-1 shows how you progress toward closeout through these directives.

3.3.1 CERCLA Compliance

CERCLA, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Public Law 96-510), was enacted on 11 December 1980 as a series of programs to remedy uncontrolled releases of contaminants from hazardous waste sites on the National Priorities List (NPL).

SARA, the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499), was enacted in October 1986 to reauthorize the funding provisions and to amend the authorities and requirements of CERCLA and associated laws. SARA is divided into five major titles, the first two of which are important to the IRP.

- Title I, "Provisions Relating Primarily to Response and Liability," contains most of the amendments to CERCLA. Of particular interest to the RPM is Section 120, which addresses response actions at federal facilities. The DERP (funding mechanism) and the IRP (cleanup implementation) are subject to and must be consistent with Section 120.

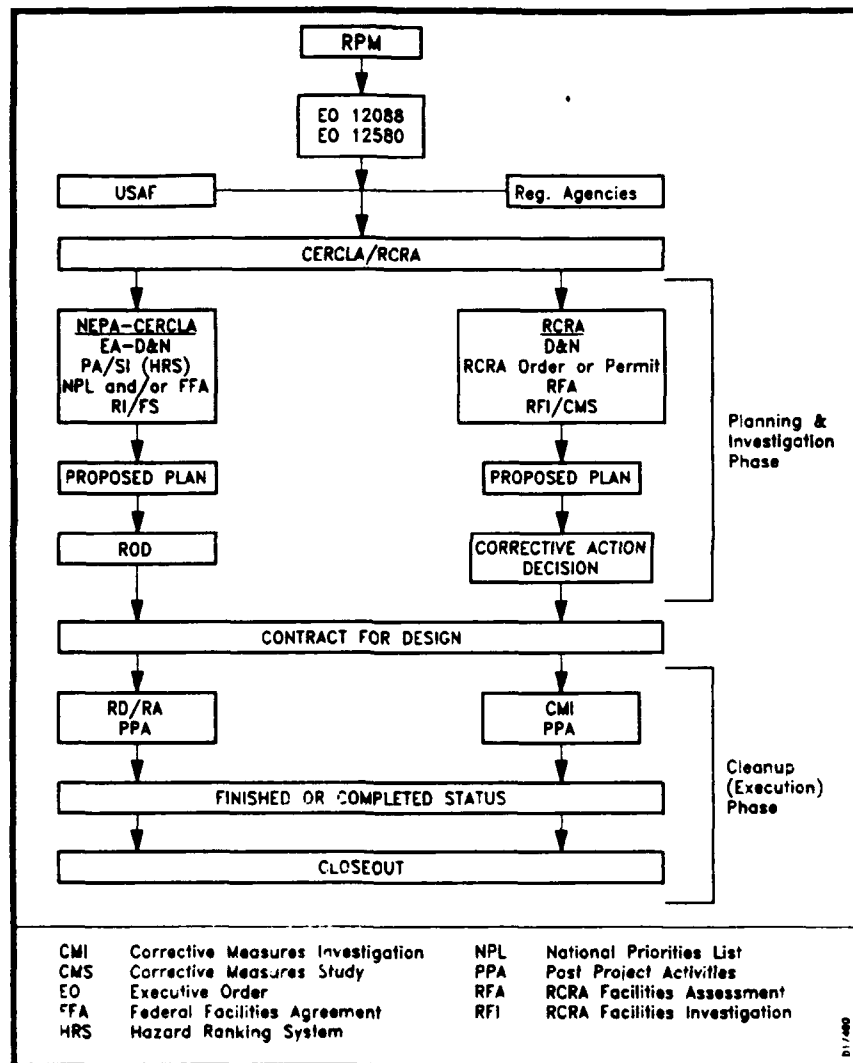


Figure 3-1
IRP Project Phases and RPM Pathways to Closeout

- Title II, "Miscellaneous Provisions," includes additional amendments to CERCLA and to other associated laws. The DERP is codified into law (as Section 211 of SARA) and amended as Chapter 160 of Title 10 of United States Code. DERP is thus not a component of CERCLA, although it is subject to and must be consistent with CERCLA.

NPL listing of an Air Force Base directly invokes RI/FS requirements of the National Contingency Plan (NCP) [40 CFR Part 300] and FFA requirements of CERCLA.

CERCLA primarily addresses past releases of hazardous substances, pollutants, or contaminants. Notification and response procedures and authorities for these releases are established in the law, with the provision that they are subject to the more detailed regulatory descriptions provided in the National Contingency Plan (NCP).

CERCLA may apply to any waste source and/or site known to contain hazardous substances, pollutants, or contaminants. CERCLA sources are areas where hazardous substances have been deposited, stored, disposed of, or placed, plus those soils that have become contaminated from the migration of hazardous substances. Example source types include surface impoundments, landfills, tanks and containers, drums, contaminated soil, and waste piles.

The Air Force is the lead agency and final authority for cleanup of non-NPL sites, although regulatory concurrence is recommended. The Air Force selects cleanup remedies in conjunction with EPA for NPL sites (cleanup alternatives are subject to EPA approval).

The NCP addresses the responsibilities, organization, preparedness, and response to spills and potential spills of oil and hazardous substances. IRP sites are usually subject to Subparts B, E, and K (when proposed) of the revised NCP, which cover response actions to hazardous substance releases or threatened releases to the environment.

must: To comply with CERCLA and the NCP, the Air Force

1. Comply with the procedural requirements of CERCLA and the NCP to protect human health and the environment.
2. Conduct Preliminary Assessments (PAs) at each base on the Federal Agency Hazardous Waste Compliance Docket (Docket) to qualify each site for inclusion on the NPL. The evaluation of non-NPL sites for NPL listing is based on the revised Hazard Ranking System (HRS) [S. 120(d)] score for each site. Even if sites are not NPL listed they are still subject to corrective action requirements of other laws in protecting human health and the environment. EPA is under court order to complete PAs for federal facilities in the Docket by 15 July 1992 and evaluate these bases for NPL by 15 July 1993.
3. Determine the relationship of CERCLA requirements to those of other environmental laws (i.e., UST Requirements under RCRA and PCB/Asbestos requirements under TSCA).
4. Begin a remedial investigation (RI) and feasibility study (FS) for each site on the NPL within 6 months of final NPL listing [CERCLA, Section 120(e)(1)].
5. Enter into an interagency agreement (hence referred to as a Federal Facility Agreement [FFA]) with the EPA and an appropriate state agency or agencies at each NPL base to establish the legal and administrative framework for environmental response actions [CERCLA, Section 120(e)(2)].
6. Begin substantial continuous physical on-site remedial action within 15 months of completing any NPL-required RI/FS [CERCLA, Section 120(e)(2)].

Recommended actions for the RPM include the following:

1. Account for all waste sites under CERCLA by conducting a base-wide PA/SI. Group sites into those that require no further action (NFA) and those for which further action is required.
2. Define operable units (OUs) for further action sites, and the scope of removal and remedial activities to be completed for each. Operable units are discussed in greater detail later in this section.
3. Integrate CERCLA requirements with RCRA requirements under an FFA (or similar agreement for non-NPL sites).
4. Identify CERCLA-exempted releases and address them under the appropriate response program (i.e., petroleum/UST releases under RCRA or PCB/asbestos releases under TSCA).

According to Section 300.400 of the NCP, CERCLA requires a response in two instances:

1. When there is a release of a hazardous substance into the environment; or
2. When there is a release into the environment of any pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare.

For NPL sites, CERCLA [Section 120] and the NCP [Subpart E] generally require:

1. Identification of all sources on a base through a base-wide PA/SI;
2. Characterization of all sources and associated contaminant migration through the RI, and

identification of target areas (e.g., those that exceed health-based regulatory criteria) requiring remediation;

3. Evaluation of remedial alternatives using the screening criteria and explicit remedy selection criteria in a site- or operable unit-specific FS (see Table 3-1);
4. Development of an Administrative Record, Proposed Plan (PP) of action, and ROD in coordination with all regulators and the public; and
5. Development of a remedial management strategy, followed by executing a remedial design (RD) and RA for each site or OU.

In addition, CERCLA and NCP specifically require:

1. Scoping of all response actions;
2. Development of Work Plans, Health and Safety Plans (HSPs), and Sampling and Analysis Plans (SAPs);
3. Development of Community Relations Plans (CRPs);
4. Evaluation of releases of hazardous substances, pollutants, or contaminants for potential removal actions;
5. Performance of a risk assessment to evaluate the "no action" alternative and to focus the remedy selection process;
6. Identification of ARARs;

Table 3-1
Criteria for Selecting Remedial Alternative

Section 121 of CERCLA	<p>Remedial Actions must:</p> <ul style="list-style-type: none">• Protect human health and the environment• Attain ARARs (or provide grounds for invoking a waiver)• Be cost-effective• Utilize permanent solutions and alternative treatment technologies to the maximum extent practicable• Satisfy the preference for treatment that reduces contaminant mobility, toxicity, and volume as principal element (or provide explanation otherwise)
Section 300.430(e) of the NCP	<p>The remedy selection process involves the evaluation of alternative remedial actions using the following nine criteria:</p> <p>Threshold Criteria</p> <ul style="list-style-type: none">• Overall protection of human health and the environment• Compliance with ARARs <p>Primary Balancing Criteria</p> <ul style="list-style-type: none">• Long-term effectiveness and permanence• Reduction of toxicity, mobility, or volume• Short-term effectiveness• Implementability• Cost <p>Modifying Criteria</p> <ul style="list-style-type: none">• State acceptance• Community acceptance

7. Performance of Health Assessments (HAs) by the Agency for Toxic Substance Disease Registry (ATSDR); and
8. Assessment by Natural Resource Trustees (NRT) of natural resource damages, if any, resulting from releases of hazardous substances.

All pre-ROD activities, beginning with early scoping, should be focused on meeting the criteria in Table 3-1.

Natural Resource Trustee Involvement

Air Force (and other DOD) installations should coordinate their Installation Restoration Program (IRP) activities with co-trustees. CERCLA, Section 107(f), designates Federal trustees as in the NCP, Subpart G. Based upon the NCP, Executive Order 12580, and other authorities, the Department of the Interior (DOI) and the Department of Commerce (DOC), represented by the National Oceanic and Atmospheric Administration (NOAA), may have co-trusteeship for portions of DOD installations. These agencies are to act on behalf of the public as trustees for natural resources. Also, State trustees act on behalf of the public as trustees for natural resources within the boundaries of a State, and Indian Tribal officials act as trustees for natural resources belonging to or managed by Indian Tribes. Where there are multiple trustees (co-trustees), because of coexisting or contiguous natural resources or concurrent jurisdictions, trustees should coordinate and cooperate. This includes notification or discovery of, injury to, destruction of, loss of, or threat to natural resources.

Contaminants migrating off DOD installations may impact natural resources of concern to NOAA or DOI. Recent AFCEE/ESS discussions with the DOI Regional Environmental Office and the Regional NOAA Coastal Resource Coordinator (CRC) yielded that they have only had a relatively small involvement with Air Force CERCLA related work. Specific guidance on these requirements is forthcoming. In the meantime, involve NOAA and DOI in your technical review committee or remedial project managers' meetings. Contact AFCEE/ESS for help in identifying NOAA and DOI contacts in your area.

3.3.2 Compliance with Non-CERCLA Requirements

In addition to complying with CERCLA, the Air Force must:

1. Comply with the procedural requirements of other laws with jurisdiction at bases in order to protect human health and the environment; and
2. Integrate the requirements of other laws into the overall environmental response program to ensure that compliance is achieved (see also Section 3.4).

RCRA, the Resource Conservation and Recovery Act of 1976 (Public Law 94-550), establishes a national strategy for managing solid and hazardous wastes and requires that records be kept on the generation, transportation, storage, and disposal of those materials. States and territories administer RCRA after EPA has approved their programs. Most states and territories now have EPA-approved solid waste management programs.

RCRA normally applies to currently active practices involving solid and hazardous waste management. RCRA may be applied by regulatory agencies to required remediation for past improper hazardous waste disposal practices and spills that resulted in a threat to the environment or human health. The RPM should integrate responses to these releases under CERCLA. Former improperly managed disposal sites (regulated or unregulated) may be pursued for closure by regulators under RCRA or CERCLA. In this case, regulators for both programs are after the same end product, "site cleanup." Try to keep your contaminated areas under a single program to eliminate regulatory overlap and avoid having to satisfy two regulatory groups. Criteria for evaluating RCRA/CERCLA eligibility are contained in EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA. Be sure to check with your base JA for an opinion on the regulation(s) that governs your sites.

Air Force bases are subject to RCRA, particularly if they generate, transport, store, treat, or have disposed of hazardous waste. If your Base has an active RCRA facility (or even an interim Part B

permit), you are likely to be required by the state to identify and list all SWMUs on your Base. If this happens, you must work very closely with the state RCRA contacts and permit writers to prevent your CERCLA cleanup areas from being listed as corrective action units under the state RCRA program.

Recommended activities for the RPM include the following:

1. Account for all waste sites under RCRA through a base-wide RCRA facilities assessment (RFA). Integrate this effort with the PA/SI under CERCLA.
2. Integrate RCRA requirements with CERCLA under an FFA or the equivalent at non-NPL bases. Apply ARARs, including state RCRA cleanup standards, to the IRP site.
3. Determine which waste sites will be addressed under the State UST program, CWA, TSCA, and other laws.
4. Keep the state informed on a regular basis of your progress under IRP.

Given the potential for overlap with programs like CERCLA, it is important to understand the relationship between program requirements (see Figure 3-2).

Executive Order 12088 (13 October 1978) was one of two EOs that gave federal agencies the responsibility for cleaning up their facilities. (This was important because federal facilities were not separately addressed in the original CERCLA or the NCP.) EO 12088 delegated to federal agencies the responsibility for ensuring compliance with applicable pollution control standards.

Executive Order 12580 (23 January 1987) delegated the President's authority under CERCLA and SARA to various federal agencies. It revoked an earlier EO (EO 12316, 14 August 1981), which delegated to federal agencies the responsibility and authority for conducting CERCLA response actions at all their facilities.

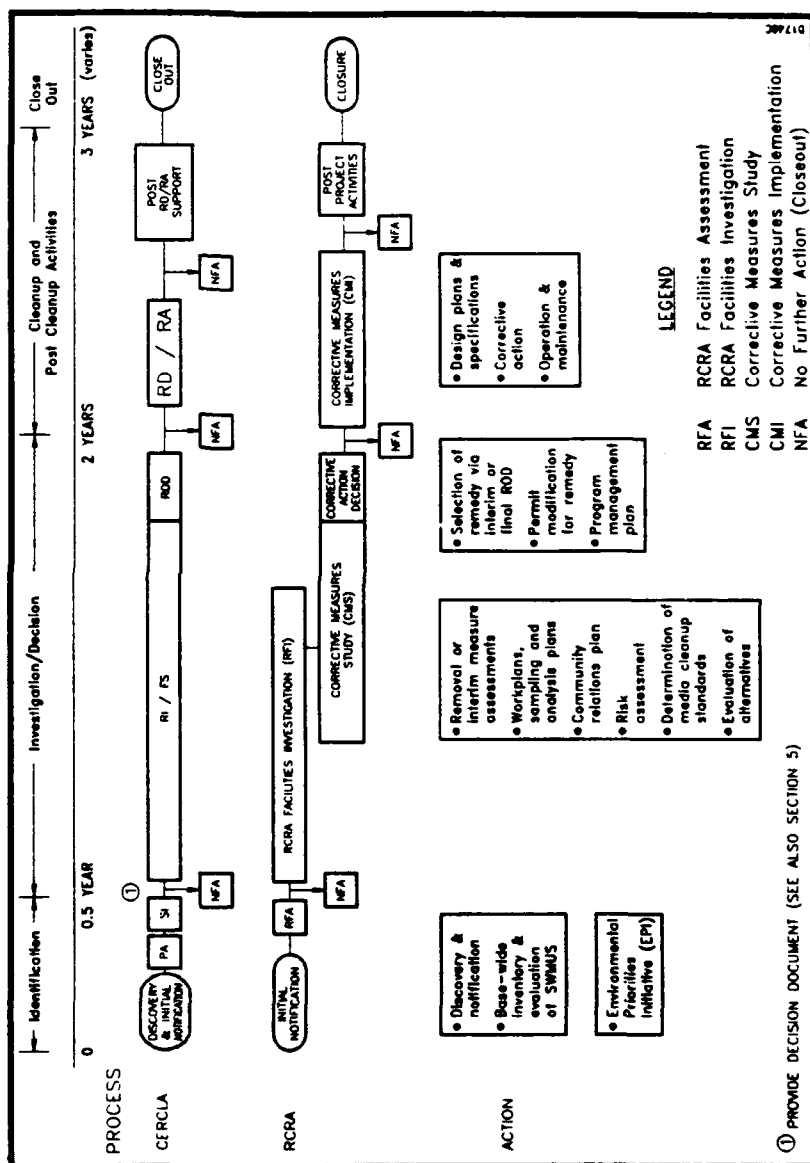


Figure 3-2
RCRA Corrective Action and
Timeline Comparison with CERCLA

**3.4 Related Regulations and Programs That May
Affect IRP Management**

As RPM, you must be aware of other acts that are applicable or relevant and appropriate requirements (ARARs) to the IRP.

1. **The National Historical Preservation Act** requires that CERCLA remedial actions consider the effects of remedial activities on historical properties or their potential effect on the National Register of Historic Places.
2. **The Archaeological and Historic Preservation Act** requires the preservation of significant scientific, prehistorical, or archaeological data that may be lost during federal construction projects.
3. **The Endangered Species Act** requires that federally funded or conducted actions not jeopardize an endangered species or adversely modify their habitats.
4. **The Wild and Scenic Rivers Act** sets forth requirements that may apply to DERP projects affecting wild, scenic, or recreational rivers.
5. **The Fish and Wildlife Coordination Act** requires that federal agencies consider the effect of DERP water-related projects on fish and wildlife and act to prevent these resources from being lost or damaged.
6. **The Wilderness Act** would be relevant to proposed remedial activities affecting a wilderness area.
7. **The Coastal Zone Management Act** requires the lead (federal or state) agency to determine whether a remedial activity will affect any coastal zone.

8. **The Clean Water Act (CWA)** contains spill provisions with which NCP actions must comply. In addition, the Clean Water Act deals with wetlands issues. At Air Force bases, CWA requirements translate into permits under the National Pollutant Discharge Elimination System (NPDES) program for "the discharge of a pollutant or pollutants into any waters of the U.S." Bases should comply with permit requirements to avoid potential conflict with restoration activities.
9. **The Safe Drinking Water Act (SDWA)** contains requirements and standards for safe levels of certain contaminants in drinking water. These standards apply to any impacted drinking water supplies in contamination incidents and may constitute the cleanup levels for groundwater.
10. **The Toxic Substances Control Act** authorizes EPA to establish specific regulations for existing and new chemical substances and mixtures. Under Section 6(e) of TSCA, the EPA has issued rules establishing storage, disposal, and cleanup requirement for polychlorinated biphenyls (PCBs) and asbestos, two substances commonly present on Air Force bases.

EPA has published a nationwide TSCA PCB spill cleanup policy [52 *Federal Register* 10688, 2 April 1987; 40 CFR Part 61, Subpart G] that establishes guidelines for spill cleanups. Response options are available under:

- the IRP via CERCLA and/or RCRA, or
- TSCA.

If the site is not otherwise governed by FFA requirements, efforts should proceed under TSCA disposal and storage requirements for PCBs. All PCB decisions must be coordinated with the appropriate regulatory agency.

If not otherwise governed by FFA requirements, asbestos sources should be remediated under Subpart M of 40 CFR Part 61. Asbestos requirements are directed at the disposal of wastes from the demolition of buildings or equipment containing friable asbestos. This decision also must be coordinated with the appropriate regulatory agency.

11. State ARARs.

3.5 Operable Unit Structure for Environmental Restoration

OUs drive the administrative process of base-wide environmental restoration. Therefore, a strategy for streamlining the environmental restoration process at a base must revolve around the selection of OUs. For both NPL and non-NPL bases, the number, composition, sequencing, and individual timeline structure of OUs must be optimized so that remedial actions are selected and taken in the most timely manner practicable.

Developing OU strategies and schedules requires technical and regulatory input early in the base-wide scoping or planning process. Identifying both technical and regulatory requirements during OU planning helps to ensure that an optimal OU strategy is adopted.

3.5.1 Designating Operable Units

Section 300.5 of the NCP defines an OU as the following:

"A discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, or pathway of exposure. The cleanup of a site can be divided into a number of OUs, depending on the complexity of the problems associated with the site. OUs may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of

actions performed over time or any actions that are concurrent but located in different parts of a site."

Each of the above-mentioned "discrete actions" is equivalent to one of the following processes:

- An interim remedial action process, or interim ROD; or
- A final remedial action based on a completed RI/FS, or a final ROD.

Each process requires agency coordination, public participation, and clear linkage to planned actions for subsequent OUs if base-wide remedial action starts and completions are to be achieved. Some bases have different contractors performing RI/FS activities at adjacent OUs, resulting in multiple contractors on base, while other bases have a contractor or contractors operating on a site-specific rather than an OU-specific basis.

OUs are effective project management tools. Examples include:

- Areas with similarly contaminated waste materials or media;
- Areas with a similar geographic location;
- Areas that may be remediated using similar techniques or within a similar timeframe; and
- Areas that are amenable to being managed in a single RI/FS.

Using geographically defined OUs is encouraged wherever practicable.

Given that the composition of OUs will need to be adjusted as investigations proceed, it is critical that each base develop a base-wide approach by which OUs are defined, sequenced, and scheduled as far beyond the ROD as possible. A conceptual example illustrating the usefulness of OUs as management tools is shown in Figure 3-3.

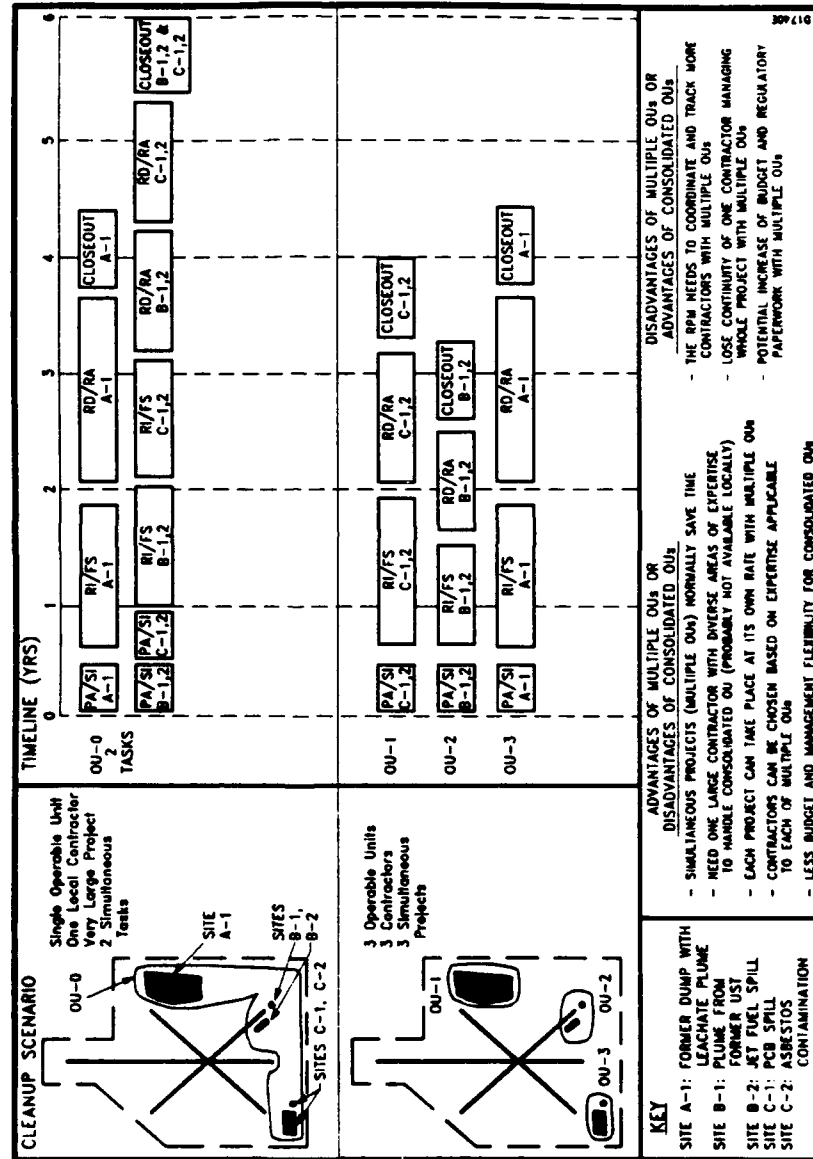


Figure 3-3
Conceptual Use of Operable Units
in Project Management

3.5.2 Establishing Priorities and Schedules

After the number and composition of OUs at a base have been identified, the next step is to determine the sequence of administrative activities associated with each OU. Scheduling/prioritization of each task and OU project will enable this. This is accomplished by comparing projected RI completion dates for all OUs and allowing three or more months between corresponding public comment periods and ROD signing dates for each. The three-month gap between public comment periods is an administrative necessity; labor and other resource limitations, as well as the potential for public misconception if the process appears to be too compressed, are all factors to be considered. (See Programming and Budgeting in Section 4 for more information.)

3.6 Important IRP Guidance Documentation

The Air Force Installation Restoration Program Guidance is a document published in 1989 for HQ USAF/CEV (currently being updated). This guidance document, referred to as the "White Book," addresses the requirements of the laws, regulations, policies, and procedures concerning the Air Force Installation Restoration Program, including the related Third-Party Sites program. It addresses issues at the installation, Major Command, and Air Staff levels of the program. It is a framework within which managers are encouraged to use well-informed judgment and innovative solutions or approaches to the program.

The HQ USAF DERP Eligibility Letter is an annual letter that outlines the eligibility of sites for DERA funding and the documentation requirements to obtain project approval/funding.

The DASD(E) directive and manual are in draft form and when published will provide DERP execution guidance. Additional documents that the RPM will find valuable are listed below:

Department of Defense. Defense Environmental Restoration Program Manual. August 1991.

HQ USAF. Defense Environmental Restoration Account (DERA) Eligibility and Programming Guidance Letter. July 23, 1990.

HQ USAF/LEE. United States Air Force Project Manager's Guide for Design and Construction. June 1989.

U.S. Air Force. Environmental Restoration Contracting Strategies Analysis, AF/CEVR. January 1992.

USEPA. Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA. EPA/540/G-89/004. October 1988.

4.0 PROGRAMMING AND BUDGETING

The primary funding for DERP comes from a special transfer account, the Defense Environmental Restoration Account (DERA), which is codified in 10 USC 2703. DERA funds must remain 100% dedicated to environmental restoration activities.

At the Base level, the IRP is likely to involve several contracts and contractors. Realistic programming and budgeting can ensure the timely processing of budget request materials and help smooth program execution by ensuring that funding, labor, and concurrence on actions are available when needed. Programming should involve the Base Environmental Protection Committee (EPC) to coordinate planned IRP activities with continuing Base activities. Your funding request is reviewed at the MAJCOM level, where it is combined with other bases' requests and forwarded to Air Staff. The structure and function of the major organizations involved in an IRP project are shown in Figure 4-1.

4.1 RPM Responsibilities

The RPM is typically responsible for the following activities:

- Prioritizing projects included in the submittal of 1391s and line item narratives.

Realize that there is less flexibility for transferring money between line items than within a line item. Therefore, group your line items (projects) together carefully to ensure flexibility for transferring money between tasks or projects as needed.

Estimate the amount of work that can be accomplished as accurately as possible. If your submittal indicates that you will complete all phases (e.g., PA/SI, RI, FS, RD/RA) of a multi-year project in one fiscal year, you may cause the deferral of other high priority projects that must be completed that fiscal year.

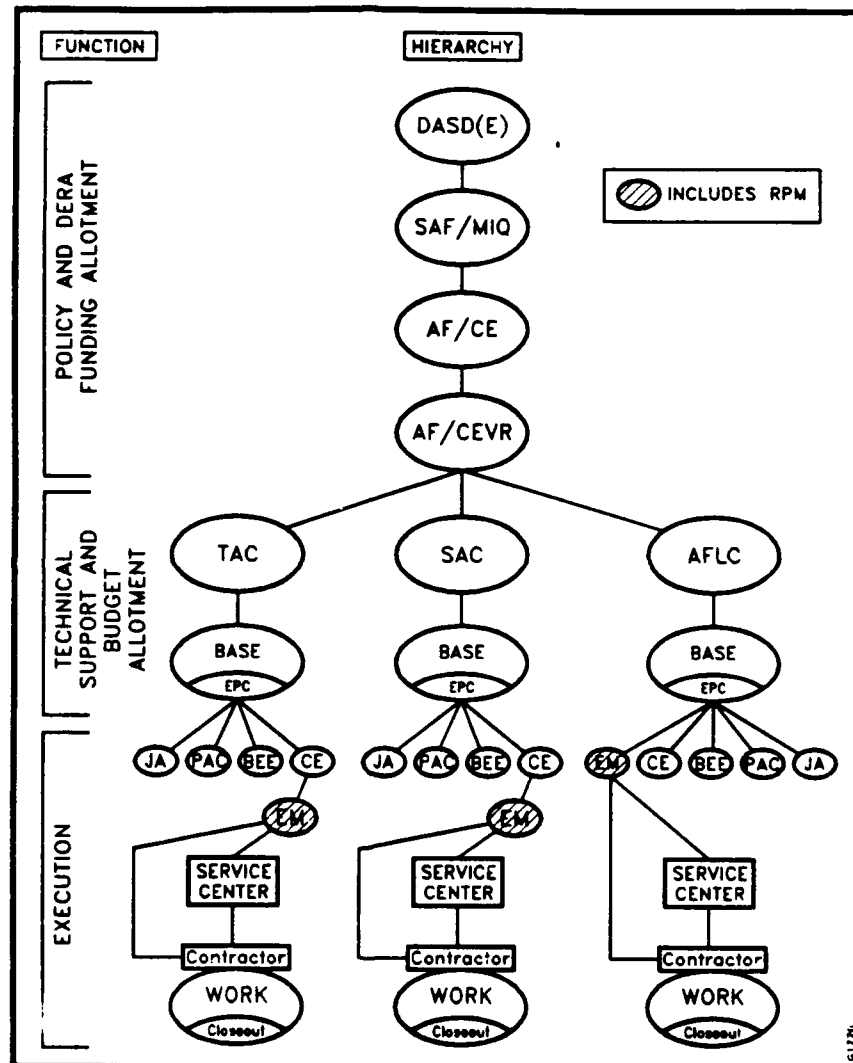


Figure 4-1
Typical Air Force IRP Project Structure

Programming and Budgeting

Also, remember that service centers often have award limits on individual delivery orders.

- Submitting the required forms and information to MAJCOM by April.
- Obligating the requirements funding within the current fiscal year.

If you wait, your Base will not receive funding for the coming FY environmental work. Therefore, it will take at least a year to get back into the proper funding cycle if you fail to meet the April deadline.

- Submitting late requests ASAP after occurrence.

If you receive late notification of an environmental requirement, there may be no room for repositioning projects and obligated funds at Base level. By submitting late requests ASAP, however, you may be eligible for any leftover, unused funds from environmental or other accounts at the MAJCOM or the Air Staff.

- Justifying any cost increase (e.g., from fast tracking) in a revised narrative ASAP.

Send via WIMS-ES to MAJCOM, then to Air Staff for validation. Also send a paper copy to MAJCOM.

- Preparing the narrative and justification for any new project, indicating why this project must be accomplished this FY.

4.2 Scoping the Project

As RPM, you should plan the entire effort from beginning to end (closeout). You need to do this even if you have brought in a service center to help. Ask yourself, "How much has been done?" and "How much needs to be done?"

Initially, you need the following information:

- Quantity and location of contamination (Sources: PA, SI, or RI);
- Identification of the highest priority area(s) (Sources: revised HRS, DPM if you are scoping the RD/RA, or the preliminary risk assessment);
- Preliminary evaluation of any immediate hazard to human health (Sources: preliminary risk assessment, regulatory agency assessments);
- Identification of the requirements for cleanup or closeout. Predict which site will require RI/FS vs. RI/FS/RD/RA. (Sources: EPA Water Quality Criteria, EPA Drinking Water Standards);
- Preliminary estimates of the time and resources needed to accomplish the work for all sites or operable units (including deliverables). Realize that limits on base resources may lengthen the project. However, concurrent activities should be scheduled if possible to shorten the project life. (Sources: Local contractors, cost estimating guides)
- Other sources: AFR 86-1, Vol. 1; Programming Civil Engineer Resources; Appropriated Fund Resources; USEPA Guidance for Conducting RI and FS under CERCLA; 26 June 1989, and the "White Book."

4.2.1 Using WIMS-ES

The RPM should be aware of the Defense Environmental Restoration Account (DERA) and the Civil Engineering's Wang-based, Work Information Management System (WIMS) Software, an automated IRP data management system. The WIMS environmental subsystem (WIMS-ES) was created to manage DERA funds by site and by project requirement, and to track the status of IRP sites. This program allows data management at the Air Staff, MAJCOM, and Base levels via personal computer terminals. It gives managers the

ability to transfer data among these organizations daily so they do not have to pass paper copies through the mail. Bases and MAJCOMs maintain and use data on their own sites.

The System

Access to the DERA module of WIMS-ES occurs through the DERA General Information Program (DGEN), or the Base General Requirements or Contract Information Screens. The software allows you to:

- Add new records (IRP sites).
Note that the creator (you) retains ownership.
- Modify information on an existing IRP site.
Note that to modify existing records, your location must have ownership of the record and you must have modification rights (Exception: some records, e.g., Base Comments, are always modifiable from the Base, although the current "ownership" of the record is held by MAJCOM. These modifications are automatically transmitted to wherever the record exists.)
- Delete a record that you have ownership of.
Note that only the level that has ownership of a record may delete it.
- Write reports using the site and requirement data files.

Data in the systems normally flow from the Base to MAJCOM to Air Staff.

The A-106 module of WIMS-ES allows you to electronically meet the requirements of EPA's A-106 process. A tape must be passed to EPA on a monthly basis so they can update their database. Therefore, as the RPM, you are responsible for keeping these records current and accurate.

The recommended WIMS-ES administrator is an appointee in Environmental Engineering (you or your designee). The

administrator is responsible for submitting daily transaction processing, designing user rights, and ensuring that training is provided to those using this software.

For more information on the WIMS-ES DERA software, see the User's guide (23 July 1990), HQ AFCEA/SCW, Tyndall AFB, FL, the Data Dictionary of the DERA Module, or the on-line DERA WIMS-ES Documentation.

4.2.2 Using AFW-IRPIMS

AFCEE developed IRPIMS as a management tool and repository for the technical data generated during IRP project activities. When HQ USAF/CEVR identified a critical need for a central archive to provide the Air Force community access to the data used to make decisions in the IRP process, they designated IRPIMS as the baseline for the development of an AFW-IRP technical information management system. The Environmental Information Management office was organized at AFCEE to change IRPIMS to an Air Force-wide system and to conduct the management tasks needed to maintain IRPIMS as an AFW-IRP resource.

The objective of Phase I of AFW-IRPIMS, now operating at AFCEE, was to determine how best to collect and organize IRP data. Phase I provides various information retrieval, report generation, and data downloading options for AFCEE users of IRP data.

Phase II, the AF-wide archive, involves loading data from IRP organizations external to AFCEE and providing on-line access to the Phase I AFW-IRPIMS for HQ USAF/CEVR and selected MAJCOMs and bases. Phase III will increase the system capacity and modify the database and/or applications to meet the needs of the AFW-IRP community. Phase IV will provide enhanced graphical capabilities on the system, chiefly through a geographic information system (GIS).

For further information on AFW-IRPIMS, refer to HQ USAF/CEVR letter dated 14 December 1990 (Appendix F) and the June and August 1991 issues of the AFW-IRPIMS newsletter.

4.3 Project Scheduling

Project scheduling is critical to project success and also facilitates the planning and budgeting process. Numerous PC compatible software packages (e.g., Timeline[®], Figure 4-2) are available to help the RPM plan budgets, plan concurrent activities (e.g., RI/FS), fast track a project, resolve time conflicts with on-site operations, and set milestones to track project progress ahead of time. Planning in advance for conflicts with other on-site operations minimizes interference with the mission of the base. Remember, frequent communication is necessary to obtain useful planning data and resolve known conflicts.

You should proceed with concurrent cleanup actions if practical. Conducting interim treatment or interim removal actions (IRA) during the IRP process is an example of this response. These cleanup options are valuable in preempting contaminant migration and human exposure. You will have to predict whether removing the source is feasible and desirable (i.e., whether a separate source removal phase, deferring cleanup to the MCL level, will be more cost effective).

4.4 Prioritization

Any contamination that meets the following criteria is of the HIGHEST PRIORITY:

- Contaminants have a high potential for migrating to human exposure points via surface water, air, wind-blown dust, or groundwater before being remediated under non-time-critical IRP projects.
- Immobile contaminants can be accessed by humans, resulting in their exposure.
- Contaminants are an explosion, fire, or corrosive hazard.

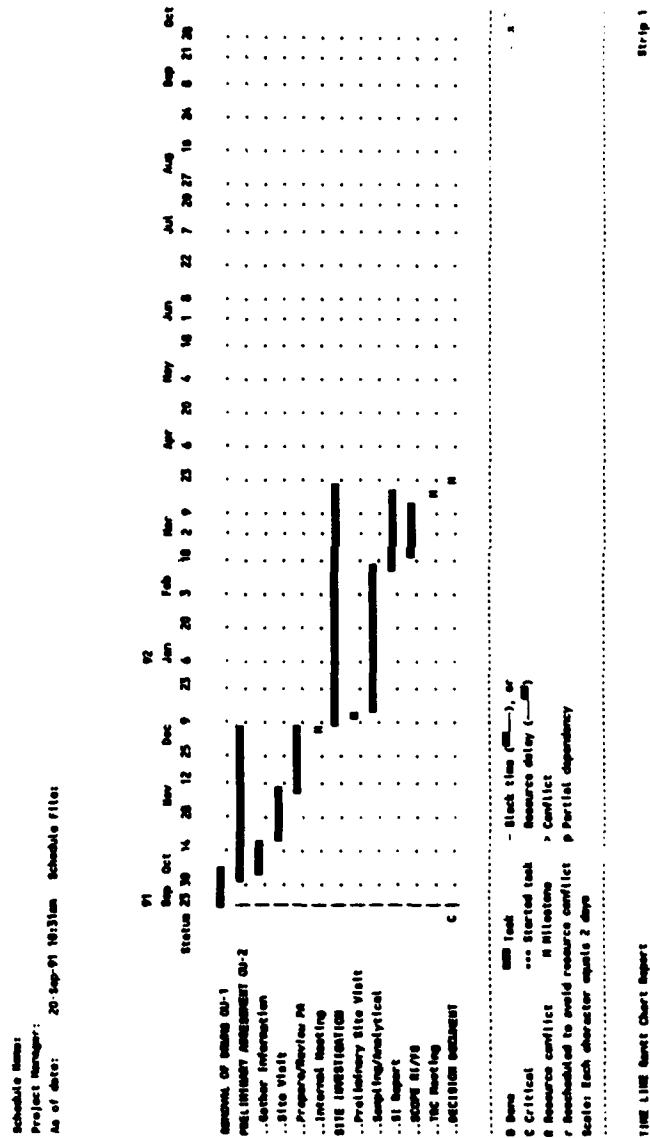


Figure 4-2
Timeline Example

Highest priority contamination events should prompt the following responses:

- Emergency response and cleanup (see SPCC Plan for your Base).
- Time Critical--removal action that emphasizes source removal.
- Non-Time-Critical--Interim treatment actions are also high priority if they will prevent excessive future costs because of the migration of contaminants.

Organize your cleanup project(s) into a yearly plan of attack. Put the items that must be paid at the top of your priority list. Make sure you can execute your high priority items during the next fiscal year or earlier for removal actions. Although this plan will probably change as the project progresses, you need a basis from which to scope the project and prepare the proper submittal documents.

Prioritize your work according to the categories listed in Chapter 7 of the DOD Defense Environmental Restoration Program Manual and according to the annual DASD(E) and CEV guidelines. Although regulatory actions may preempt all other considerations, you may use several scales to prioritize your site, including the Hazard Ranking System (revised HRS), and the Defense Priority Model (DPM).

Ranking site remedial actions is based on more detailed information than the revised HRS. The DPM may not be needed for very simple removals, but generally must be used to obtain DERA dollars. (See the DPM guidance for the FY 92 program memorandum). Note that the DPM was developed for use at the end of the RI/FS stages.

4.5 Identifying Possible Alternatives

Methods for identifying possible alternatives include the following:

- Compare your situation with similar cleanup actions at other facilities. You may use databases such as WIMS-ES or RACER (being developed) to review alternatives used at other bases or you may choose to contact your MAJCOM, service center, or other Base RPMs for their experience. It is also advisable to contact environmental offices of other services or facilities in the same state or EPA region to discuss lessons learned.
- Access available EPA guidance on remedial alternatives and other publications available in the Base or local library.
- Table 5-6 presents some examples of alternatives.
- Take advantage of all environmental restoration newsletters and crosstalk letters.

4.6 Cost Estimating

After you determine the project tasks and time frame, estimate the costs of the project. You should establish sources that have reliable cost estimating information. The following sources may help you project funding needs.

- Contact environmental equipment manufacturers for information on the costs of renting sampling equipment. Most consultants keep files of such businesses for reference, or they will help you prepare cost estimates. Exercise caution here because individuals have no authority to commit the government. Inform vendors that there will be no direct reimbursement for the cost information; however, they could benefit from this exposure later in the project.
- Communicate with managers at other bases who have been involved in similar activities.

- Use published U.S. Department of Labor general wage rates for the area where the work will occur. Information on obtaining these rates is available from USDL Regional offices or from the U.S. Government Printing Office in Washington (202 523-7443).
- Use other sources of costing information.
 - Publications such as Mean Cost Data, Richardson's Cost Estimating Guide and Dodge Cost Estimating Guide. These are available from local text book suppliers.
 - Personal computer tools to help you estimate costs include: Remedial Action/Cost Estimating and Risk Model [RACER (being developed)] and Micro-Computer Aided Cost Estimating System (M-CACES, U.S. Army Corps of Engineers).

You must include the preliminary cost estimate with the submitted request for funds. **Maintain a costing file that includes all background information, such as contractor quotes, calculations, scheduling printouts, and lists of contacts and telephone contact records.** This information is essential if questions arise about your cost estimate when it is being reviewed. **Remember that you can request service centers and contractors to provide cost estimates for the work to be performed.** However, their costs must also be included. The use of service centers is discussed in Section 5.

4.7 Funding

Now you're ready to request funding for your project. An example budgeting schedule is provided in Table 4-1. The term "full documentation" in this table refers to DERA narratives and/or DD forms 1391/1391C plus all attachments such as cost estimates, maps, position descriptions, etc.

**Table 4-1
Example Budgeting Schedule**

Jan	
Feb	By April 30-base submits next FY (FY+1) full documentation and FY after next (FY+2) line items to MAJCOM
Mar	
Apr	
May	By May 31 - MAJCOM submits FY+1 full documentation and FY+2 line items to Air Staff
Jun	
Jul	
Aug	SAF/MIQ reviews and validates FY+1 full documentation and FY+2 line items.
Sep	SAF/MIQ submits FY+1 line items and FY+2 line items to DASD(E). DPM scores are submitted for FY+1 RA projects.
End of FY	
Oct	Congressional authority received. Funds are distributed to Services, then to MAJCOMs based on fair share requirements, number of NPL sites, and DPM scores.
Nov	
Dec	

**If your budget request isn't submitted by April,
you'll probably be left in the hangar!**



4.7.1 Funding Sources

Sources of funds include:

- Defense Environmental Restoration Account (DERA), and
- Operation & Maintenance (O&M) Base Funds for activities after the first 10 years of a remedial operation.

After DERA funds are approved, the allotment of money is sent from MAJCOM to the service center or the Base. Advise MAJCOM of any unplanned changes in funding needs (e.g., unexpected cost growth or additional contaminant source quantities) throughout the FY. MAJCOM can reallocate unused funds or OSD funds from previous years may still be available.

4.7.2 Funding Documentation

The required documentation for funding includes:

- DERA Narrative Document.
- DD Form 1391/1391c with narratives (Military Construction Project Data Form/and Continuation Sheet, as necessary). An example completed form with instructions is included in Appendix G.
- Line items for the Out Year (i.e., 1391 for FY 93, line items for FY 94).
- Attachments such as cost estimates, maps, position descriptions, and cross references to the Base Master Plan.

4.7.3 Reviewing the Request for Funds

Check your funding request thoroughly to avoid mistakes that disrupt the budget process (a request containing mistakes may be returned). Your request for funding must be reviewed by:

- MAJCOM, who reviews and forwards request to Air Staff;
- AIR STAFF, who reviews and forwards request to SAF/MIQ;
- SAF/MIQ, who reviews and forwards request to DASD(E) to consolidate with the other services; and
- DASD(E), who forwards a budget request to the Comptroller and ultimately to the Congress.

5.0 PROJECT MANAGEMENT

Project management is the process whereby an individual is made responsible for planning, organizing, coordinating, directing, and controlling the combined efforts of functional staff and contract services to accomplish a project objective. A "cradle-to-grave" approach is essential on environmental restoration type projects. As RPM, you should be involved in all phases of the project from problem definition through project design, remedial action, and closeout. You are the single individual who is involved in all aspects of the project including interagency relationships, funds management, schedule, design, remedial action, etc. You are frequently the single point of contact for outside agencies and should be the most knowledgeable individual regarding site specifics. Project management is the method by which you maintain some sense of control over the schedule, cost, and quality of the remediation process.

The first step (if you have not already done so) is to establish the environmental compliance status of your base. The recommended method for determining the status is to conduct an Environmental Compliance Assessment Management Program (ECAMP) audit. Trained Air Force staff from MAJCOM, Air Staff, or service centers can help conduct an internal assessment to evaluate all potential environmental problems on site. External ECAMP audits can be conducted by outside consultant firms in coordination with the Air Force ECAMP Team.

If your Base is already at some stage of the IRP process, evaluate the stages that have been completed and approved by regulators. As RPM for a given site, you must determine if the existing information is sufficient to:

- Characterize the extent and concentration of the contamination;
- Evaluate technologies and alternatives for remediating the problem; and/or
- Determine that no significant risk or impact exists and close the site.

5.1 Management Options (What Help is Available)

As RPM, you may need help from other sources to evaluate the existing information and determine the need for additional information. Make a list of your sites using ECAMP audit results, RCRA Part B permits, and other available sources of information. Learn from the work that's already been performed at other bases. After analyzing the existing information, move on to planning the next phase of the cleanup process.

Assistance for all phases of the IRP process is available from Base staff, service centers, or MAJCOM. When you use other sources for help, you should first make sure that their technical qualifications are adequate. The source must be knowledgeable in the relevant project areas to function adequately.

Example sources of help include contract service centers and Air Force Regional Compliance Offices (RCO). Service centers include AFCEE, USACE, HAZWRAP, and NAVFACENGCOM. A more detailed list of service centers is included in Section 2.

Service centers offer contracting, SOW preparation, technical evaluation, project tracking, Health & Safety oversight, QA/QC oversight, and help with community relations. These services allow you to deal efficiently with normal responsibilities such as regulatory agency contacts, Base Commander briefings, budget requests, and Base support staff oversight.

RCOs may act as a liaison between the Air Force and state or federal regulators. They provide an Air Staff presence at regional regulatory levels, foster external communications between the Air Force and the regulatory community, and provide program management and oversight. RCO representatives meet regularly with state and federal authorities and regularly advise Air Force organizations about matters affecting standards, plans, programs, policies, and budgets.

Identify the team you'll need. Table 5-1 shows example areas of expertise needed for the project team. This table also shows

Table 5-1

Team Requirements (Level of Expertise)

PERSONNEL	TECHNICAL EXPERTISE	D&N	PA	SI	RI	RD/POST	CLOSE-OUT
BASE (IF NOT CONTRACTED)							
Trained ECAMP Staff	Environmental Assessment	X	X	X			
Bioenvironmental Engineering	Health and Safety			X	X	X	X
	Biological Sampling			X	X		X
	Water/Wastewater Sampling				X		X
(Environmental Technician OSHA 40 Hr Trained 4 Yr Sciences Degree)	GW Monitoring/Sampling			X	X		
	Soil Sampling			X	X		X
	Air Monitoring/Sampling			X	X		X
	Quality Assurance (1)	X	X	X	X	X	X
Civil Engineering	Planning, Programming (1)	X	X	X	X	X	X
	Budgeting, Contracting (1)				X	X	
	Design Review (1)					X	
	Quality Assurance (1)					X	
Public Affairs Coordinator	Community Relations	X		X	X	X	X
Judge Advocate	Legal Assistance	X		X	X		X
Planning Commission	Local Planning/Design				X	X	
Environmental Prot. Committee	Variety of Technical Experts				X	X	
Technical Review Committee	Variety of Technical Experts			X	X	X	X
CONTRACTOR							
Env. Sci./Eng. >4yrs exp	Env. Assessment/Site Invest.		X	X			X
Environmental Technician	GW Monitoring/Sampling			X	X		X
OSHA 40 Hr Trained	Soil Sampling			X	X		
4 Yr Sciences Degree	Air Monitoring/Sampling			X	X		X
Hydrogeologist	Contaminant Modeling				X	X	
Surveyor	Surveying/Air Photo			X	X	X	
Certified Industrial Hygienist/ Industrial Hygiene Technician	Personal Safety Monitoring			X	X	X	
Engineering Team	Remedial Alternatives Study				X		
	Remedial Design					X	
Construction Contractor with Engineer Oversight	Remedial Action					X	X
REGULATORY AGENCY (Level of Expertise)							
Certified Geologist, Engineer or Hydrogeologist	Site Inspection	X	X	X	X	X	X
	Notification Corresp. Review	X	X	X	X	X	X
	Project Meetings		X	X	X	X	
	Remedial Alternatives Review					X	
	Remedial Design Review					X	
Env. or Health Dept. Head	DD or ROD Review		X	X	X		
Cert. Geol., Eng. or Hydgeol	Remedial Action Tracking		X	X	X	X	X
Env. or Health Dept. Head	Closure Plan Review					X	
Cert. Geol., Eng. or Hydgeol	Post Closure Tracking						X

1 - A Service Center can also accomplish these activities if contracted.

the assistance available to you as RPM and to the potential project team. Contractor evaluation and qualification is discussed in Section 6.

Additional sources of input may include the Base Planning office, the Base or MAJCOM Environmental Protection Committee (EPC), or the Technical Review Committee (TRC). You should coordinate with Base Planning before any design activities begin (probably during the FS stage). This group needs to determine if the site work is consistent with the office and that all local permits, etc. are obtained. The EPC is composed of technical experts who should be involved before and during the RD phase. (Refer to AF Regulation 19-8, August 1988, for specific guidance on Base and MAJCOM EPC composition and responsibilities.) The TRC is composed of representatives from the Air Force, the community, and the regulators. The TRC's function is to review documents, provide feedback from involved factions, and prevent problems from developing.

Certain management tools also help streamline the IRP process. Computer software packages can help you document, plan, cost, budget, and track projects. For example, you can query WIMS-ES and IRPIMS to obtain existing information about remedial technologies and deliverables for similar sites. Table 5-2 shows some tools available to you or the service center (if contracted).

Also, EPA has prepared a model RI/FS for landfills which is an excellent guide for landfills (Streamlining the RI/FS for CERCLA Municipal Landfill Sites, EPA, 1990). Probably more important, it is a good guide for approaching the cleanup of any type of site.

As RPM, you must decide whether you have the base-level support to conduct the project in house (Table 5-3). The two most common management options for conducting the work are base-level contracting and service centers. **If you do not contract with a service center, you are responsible for coordinating major portions of the IRP process.** Base-level contracting and procurement has certain advantages and disadvantages, as listed in Table 5-4.

Table 5-2

Typical RPM or Service Center Tasks and Support Tasks

TASKS	TOOLS
-INFORMATION MGT. -PROJECT TRACKING -DOCUMENTATION -PROJECT WORK PLAN -STATUS REPORTS	IRPIMS WIMS-ES-DETA MOD. CD-ROM SYSTEMS DERPMIS-DOD ATTIC-DATABASE NEESA TECHNOLOGY GUIDE
-PLANNING -SCOPING	SOFTWARE (e.g. Timeline) BASE CE ADPM
-BUDGETING -COSTING -FUNDING REQUESTS -NEGOTIATIONS -BUDGET TRACKING	RACER (BEING DEVELOPED) M-CACES, CORA COSTING MANUALS (i.e. MEANS DODGE, RICHARDSON) FORM 1391 MAJCOM OR CE ASSISTANCE SOWs FOR R/FS ACASS, CCASS
-SOW -CONTRACTOR EVALUATION AND SELECTION -SOLICITATION -BID OR PROPOSAL EVALUATION -CONTRACT AWARD -NOTICE TO PROCEED -PROJECT MODIFICATION	CONTRACT STRATEGY GUIDE BASE CE PMs DESIGN GUIDE
-REG. AGENCY CONTACT, SUBMITTALS & MEETINGS -STATUS REPORTS -COMMUNITY RELATIONS	OBTAIN MAJCOM OR CE ASSISTANCE
-GENERAL PROGRAM MANAGEMENT -QA/QC	BASE JA OFF-BASE RPMs AGENCY CONTACTS BASE PAC OFF BASE RPMs NEWS BULLETINS NEWS ARTICLES
	DERP MANUAL IRP COURSE, V. 1&2. SCHOOL ENG. SERVICES. AF-IRP MGT "WHITE BOOK" EPA GUIDANCE FOR CONDUCTING R/FS UNDER CERCLA

Table 5-3

Selection Criteria

BASE LEVEL? or SERVICE CENTER CONTRACTING?	LARGE PROJECT SUPPORT STAFF	SMALL PROJECT SUPPORT STAFF
SMALL ENVIRONMENTAL PROBLEM	BASE LEVEL CONTRACTING	SERVICE CENTER
LARGE ENVIRONMENTAL PROBLEM	BASE LEVEL and/or SERVICE CENTER	SERVICE CENTER

Table 5-4

**Advantages and Disadvantages of Base-Level
and Service Center Contracting**

Advantages	Disadvantages
BASE LEVEL	
High level of RPM control	Significant increase in work load for RPM
RPM/Base assigns project priority	May not have sufficient staff or expertise to complete the project properly
SERVICE CENTER	
Provides one-stop shopping	Additional costs associated with non-Air Force level of effort and profit
Possesses substantial staff expertise in all aspects of environmental cleanup including contracting	Direct control by the ordering agency is lost
Well-established funding and contracting mechanisms	
Can adjust size and mix of staff experts to manage projects of different scope and complexity	

5.1.1 Typical Project Execution Scenario

For purposes of continuity, only one contractor should be used for investigation and another contractor should be used for on-site cleanup (with proper oversight). Project oversight during the cleanup phase may come from the RPM, the service center, or an E/C (Figure 5-1).

You have the choice of two scenarios for executing the project. In the typical scenario, one investigation contractor conducts the project through the design phase. The E/C prepares detailed plans and specifications for the RA. **The contracting officer (CO) is responsible for using the detailed plans produced by the E/C after the Investigation Phase to select a remediation contractor and issue the notice to proceed with the work.** Note that you may be responsible for project oversight if you have not contracted with a service center or contracted site supervisor/inspector. To ensure successful project oversight, the overseer should:

- Be present on site and have time for personal involvement in the project;
- Keep detailed records, including: photographs, progress notes, records of problems encountered, resolutions, sampling results, and regulatory contacts; and
- Have applicable expertise in remedial action and field supervision, remedial techniques, and (as necessary) health and safety.

Note that as the RPM, you have much more responsibility in the typical project execution scenario.

5.1.2 Two-Step Project Execution Scenario

The other project execution scenario is the two-step type. In the two-step scenario, the E/C prepares a performance specification and normally oversees the remediation contractor to maintain project quality. **The remediation contractor has the flexibility to plan his own cleanup process and conduct the cleanup phase according to the**

PROJECT EXECUTION SCENARIO	E/C OR REMEDIATION CONTRACTOR	INVESTIGATION PHASE					CLEANUP PHASE		
		PA	SI	RI	FS	RD	RA	LONG TERM OPERATION	
TYPICAL	ONE E/C							1	1
	ONE REMEDIATION CONTRACTOR								
TWO STEP	ONE OVERALL E/C								1
	ONE REMEDIATION CONTRACTOR								

Indicates direct involvement in the project.

The E/C should prepare a performance specification (PS) and oversee remedial action to maintain project quality (QA/QC).

1 The RPM or service center is directly responsible for project quality assurance and oversight.

Figure 5-1
Suggested Project Execution Scenarios

particular services that his company can offer. Project continuity is maintained by the E/C and by the RPM or service center that has been involved from the investigation phase. To produce successful results, you should specify the tasks and qualities of the project overseer in the E/C's investigation or RD contract.

After you establish a functional team, meet periodically to coordinate all parts of the project and to relate progress to the regulatory agency. If legitimate contract problems are brought to your attention during the project, scope modifications may be used to resolve the problem so that work may continue using the same contractor.

The regulatory agency should be present for the formal meetings only. Hold informal meetings before the formal meetings to organize and prepare all pertinent information. Based on your experience with any current site problems and public complaints, you should anticipate questions from the regulatory agency at the preliminary meetings. Discuss responses to potential questions in detail at the preliminary meetings.

5.2 Techniques for Improving Execution

Refer to the following list of suggestions as you select the appropriate execution scenario and plan your project activities. The applicability of these suggestions will depend in part on the execution scenario you select.

1. Use the same contractor for design activities that you used for planning activities.
2. Use on-board reviews.
3. Negotiate options in your contract to allow quick transition from RI/FS to remedial design.
4. When the revised HRS form is completed during the PA/SI, submit it to the EPA with the PA/SI report. This will expedite EPA response.

5. Learn how to use your service center for help in the programming process. They can write narratives, do estimates, and help with DD Form 1391 preparation. On-base contracting representatives can also help.
6. Develop a critical path management (CPM) strategy.
7. Use appropriate software to expedite scheduling.
8. Consider holding the E/C accountable for preparing draft ROD. Otherwise, investigate the boilerplate documents being developed by AFCEE (see also Section 5.4). Negotiate meetings with regulators into the contract.
9. Follow document submittal with a telephone call to verify receipt and expedite regulatory response.
10. Don't wait until the end of an activity to begin programming for the next activity. As soon as it becomes apparent that you will be conducting additional planning, design, or cleanup, begin the programming process.
11. Don't be reluctant to pursue out-of-cycle programming. If you need funds to keep a project moving from one stage to another, make it known and make your request early. The programming cycle should not be an excuse for slowing project execution.
12. Use fast-tracking methods whenever feasible, i.e., start remedial design while waiting for ROD approval.
13. Use indefinite delivery contracts with reliable contractors whenever possible.
14. Try to minimize mobilization/demobilization events by scheduling continuous field work through completion for all sites.

When automated (computer) systems become available, you should investigate:

- Using computer systems to format and to present data to regulators.
- Using a computer system scoping model [e.g., RACER being developed, or Cost of Remedial Action Model (CORA) U.S. EPA, Version 3, 1990] to ensure contractors perform adequate testing during their initial visits.

5.3 Activities Leading to ROD

The remedial action process is the primary response action. It is a logical sequence of activities designed to lead to Site Closeout. You can initiate closeout at any step during the remedial action process as long as the findings at a site justify Site Closeout. Before this, however, you must prepare a decision document (non-NPL site) or a Record of Decision (NPL or proposed NPL site) describing the remedial action selected for site closeout.

As discussed in Section 1, the IRP is grouped into functional stages:

- Preliminary Assessment/Site Inspection (PA/SI);
- Remedial Investigation/Feasibility Study (RI/FS);
- Remedial Design/Remedial Action (RD/RA); and
- Site Closeout (SC).

Each of the stages, except for Site Closeout, is subdivided into several steps. The step that initiates the remedial action process in the IRP is Discovery and Notification (D&N).

5.3.1 Discovery and Notification (D&N)

CERCLA requires that all new hazardous waste sites be reported to EPA for inclusion on the Federal Agency Hazardous Waste Compliance Docket. In response to CERCLA requirements, Environmental Compliance Assessments at federal facilities, including Air Force bases, have been the primary basis for identifying and reporting potential hazardous waste sites to EPA.

RPM Responsibilities

Discovery and Notification starts at the Base level, and although much of this work was initially done within a few years after CERCLA was enacted, new sites are still being discovered. Therefore, it is your responsibility as RPM to identify new sites through Discovery and Notification. IRP sites are generally discovered by one of the following methods:

- Environmental Compliance Assessments (ECAMP). You and the Base should actively support this program.
- Listen to key people (e.g., retired and long-term employees). Confirm statements about possible contamination incidents and document the findings in writing.
- Discovery during normal installation maintenance and construction activities.
- Complaints from adjacent landowners. Listen to the affected public near the Base and be perceptive. Get involved in the community and investigate valid complaints. This is a good way to learn about possible pollution contributions from off-Base sources as well, and to build rapport with the local community.
- During Remedial Investigation activities at other known IRP sites.

- During facility inspections by regulatory agencies.

Discovery

Records searches have been conducted for major Air Force installations that historically handled hazardous waste. Your installation MAJCOM can identify the source of the records searches. Most IRP sites discovered to date were identified during the records searches conducted for D&N. Figure 5-2 shows the basic elements of the D&N step. CERCLA requires that you report all hazardous waste sites to EPA. The installations' Spill Prevention, Control and Countermeasure (SPCC) Plans, or their RCRA (Part B) permits may specify additional notification and coordination actions for newly created and discovered sites, although not all installations have these additional regulatory notifications.

Notification

Generally, the installation environmental personnel initiate (or have initiated) the remedial action process through D&N to EPA. However, for newly discovered sites, you may be responsible for initiating the process. At a minimum, it is your responsibility to notify EPA (in writing) through MAJCOM of your discovery. Notifying the state is also advisable. The regional EPA then enters the site in the Federal Agency Hazardous Waste Compliance Docket. Every six months the EPA Administrator publishes in the Federal Register a list of federal facilities (NPL or non-NPL) that have been included in the docket during the preceding 6-month period. Reporting site discoveries to EPA is a legal requirement and ensures that the remedial action process is initiated at a site.

Following D&N, you should closely coordinate subsequent actions at the site with EPA and the appropriate state agency. Although you might think that a site can be closed out soon after D&N, obtain Site Closeout confirmation from the regulatory agencies.

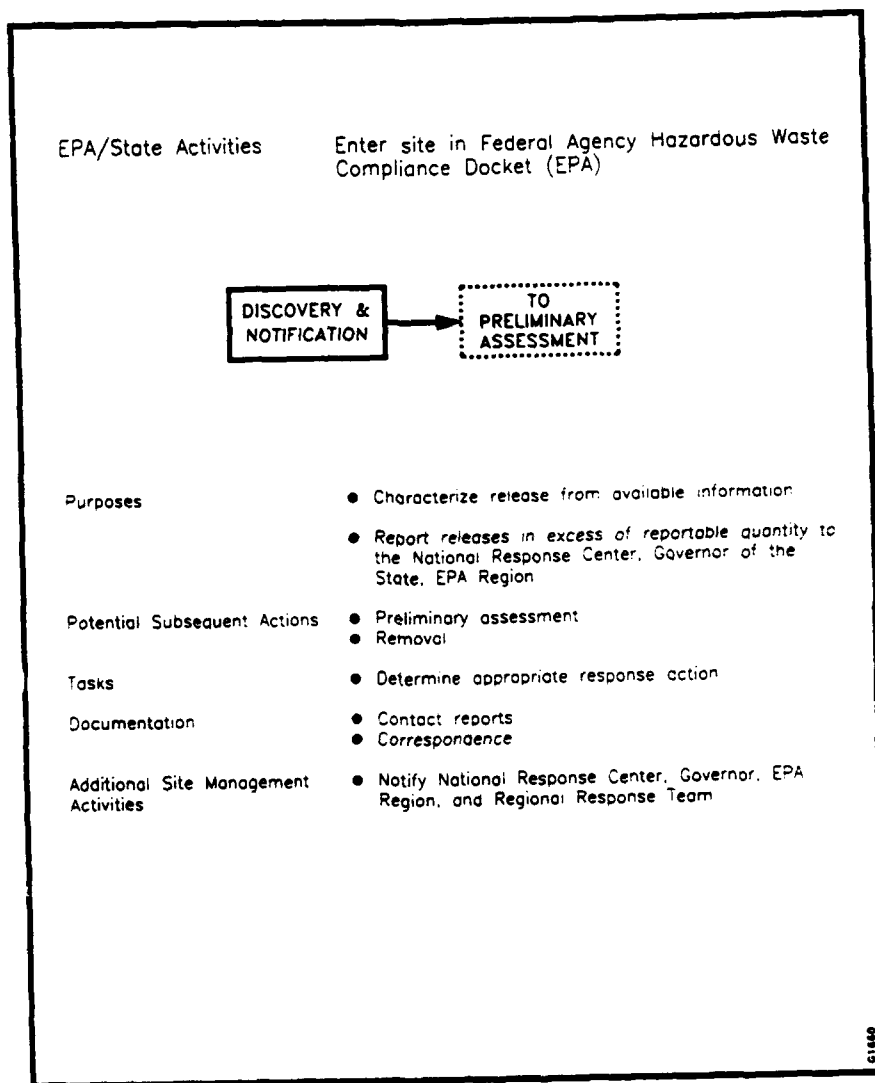


Figure 5-2
Elements of the Discovery and Notification Step

Project Management

5.3.2 Preliminary Assessment/Site Inspection (PA/SI)

The PA/SI is the second step in the remedial action process after Discovery and Notification (D&N). The service center, if contracted, generally becomes involved in the remedial action process after the D&N step.

RPM Responsibilities

Most IRP site work is procured through service centers. You, as RPM, or the service center create the Statement of Work (SOW), coordinate all contract actions, recommend the contract type, and oversee contractor performance.

As a remedial project manager (RPM), it is your responsibility to:

- Coordinate a contract strategy (possibly in conjunction with a service center);
- Help evaluate a site for any immediate health threat and plan an appropriate response;
- Acquire funding through MAJCOM for the contract and obtain the release of funds so that services can be procured;
- Prepare a Statement of Work (SOW) that describes work to be performed during site activities;
- Brief the Base Commander about the status, progress, goals, and time frame for each project;
- Prepare an Independent Government Cost Estimate (IGCE) as part of the procurement process;
- Provide enough information to help potential contractors develop a cost proposal;
- Write a Competitive Evaluation Plan that describes how technical proposals will be evaluated (optional);

Project Management

- Participate in pre-proposal conference and site tour;
- Participate in pre-award contract negotiations;
- Confirm statements about possible contamination incidents and document findings in writing;
- Participate in a post-award conference;
- Participate in debriefing unsuccessful proposers (optional, based on the solicitation process);
- Track and support contractor's technical performance in conjunction with the service center;
- Track contractor's progress in relation to costs and schedule in conjunction with the service center;
- Coordinate with the contractor or service center regarding new or updated EPA or state regulatory requirements;
- Maintain contact with all involved regulatory agencies and promote prompt review by providing required information through written correspondence and meetings;
- Determine the acceptability of the completed effort; and
- Participate in closing out the contract.

EPA or the state lead agency may perform the PA and SI; therefore, to avoid potential conflicts between EPA or the state and the Air Force, you should establish effective communication channels with the appropriate government agency during the technical scoping of the project.

If a site requires only PA/SI services, the SOW and work plan requirements are relatively minimal. For most installations, the PA of the known sites has already been completed. Biannual updating

of the Federal Facility Docket determines the need for a new PA. PA deficiency notices can come at any time and the resulting information is necessary for EPA to complete revised HRS scoring under the revised system. You or the E/C should complete a revised HRS for internal reference or submittal to EPA. PA/SIs may be required for:

- Sites discovered in the future that may not be eligible for DERA funds; and
- Sites that are not candidates for remedial action or for which the "no action" alternative needs refining.

PA Process Details

Figure 5-3 summarizes the elements of the Preliminary Assessment (PA) step. The purpose of the PA is to distinguish those releases that pose a potential threat to public health, welfare, or the environment. In conducting the PA, you will:

- Describe the source and nature of a release;
- Evaluate the threats to public health and welfare or the environment;
- Determine the need for removal, Site Inspection (SI), Remedial Investigation/Feasibility Study (RI/FS), or no action; and
- Gather existing data to facilitate revised HRS scoring.

To perform a PA, you need to identify information needs; determine the presence of chemicals of concern; estimate toxicity; estimate potential for migration/exposure; and document the conclusions. By utilizing a minimal amount of analytical data and default values for scoring, the score packages can be useful in determining initial scores and whether a site will require further response actions. PA scoring guidance packages are available from NTIS Guidance for Performing Preliminary Assessments under CERCLA (Order #PB92-96-3303).

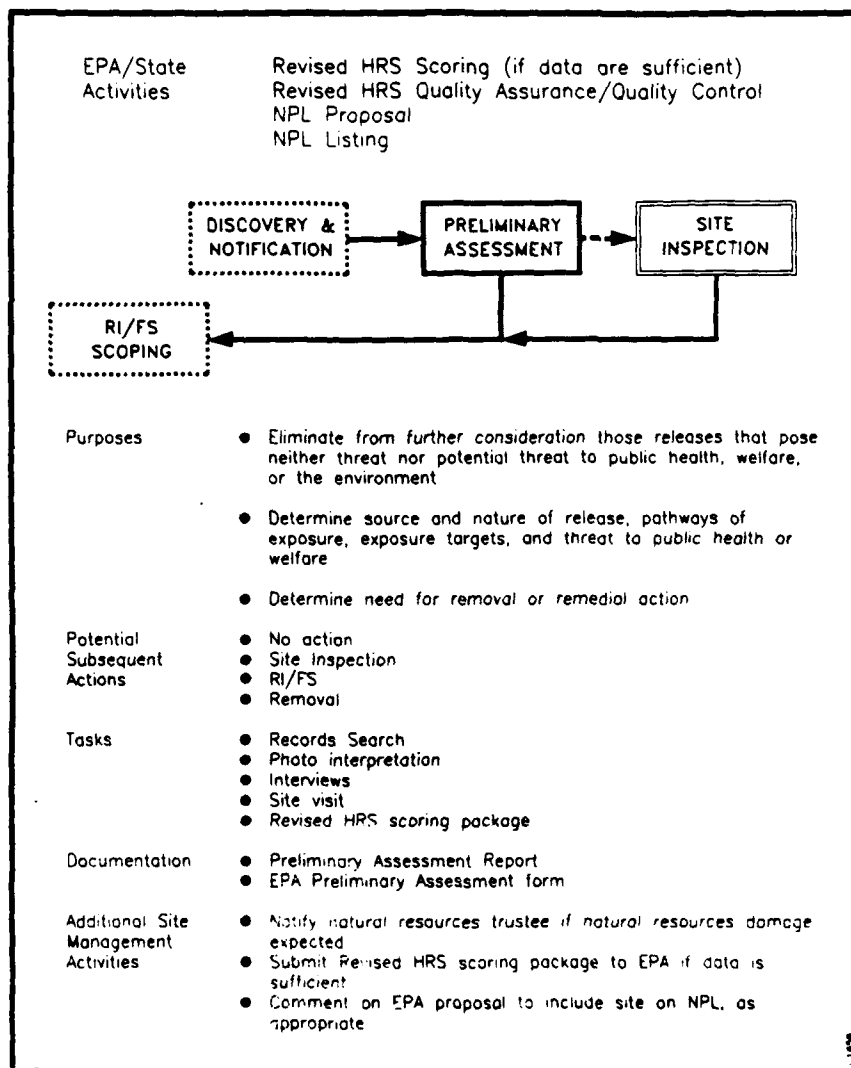


Figure 5-3
Elements of the Preliminary Assessment

Identify Information Needs--Use available information to prepare the PA. Types and sources of information include (see also Appendix H, Data Collection Information Sources):

- Interviews with employed or retired personnel;
- Historical records searches of past waste generation and site management practices;
- Aerial photographs at 5-year intervals dating back to pre-installation condition;
- Inspection of potential sites;
- Environmental Compliance Assessment and Management Program (ECAMP) audit results (audit protocols are available from AFCEE, Brooks AFB);
- Base historian;
- USDA soil surveys;
- USDI Geological Survey map quadrangles;
- USEPA Region Freedom of Information Officer, RCRA and CERCLIS Facilities list;
- FEMA National Flood Insurance rate maps;
- National Priorities List;
- State leaking petroleum storage tank corrective action list;
- Chemical Information Service CERCLIS database;
- Interviews with adjacent private property owners;
- Water well records;
- Any previous sampling results;

Project Management

- Regulatory agency files on previous Base inspections, telephone contacts, etc.; and
- Community property transition and zoning records.

It is especially important to document the sources of all information gathered during the PA, including the names, phone numbers, and positions of all interviewees. If you (or the contractor) conduct interviews with off-Base personnel or property owners, you should coordinate this effort through the Base Public Affairs Office.

Identify Chemicals of Concern, Sources, Paths--Identify potential sources of contamination and chemicals of concern by understanding the site use (e.g., pesticide disposal area, fire training area, solvent storage area). Your team can identify potential off-site receptors by inspecting surrounding areas, reviewing climatologic information, topographic maps, and water well inventories. It is also important to identify potential off-site sources of contamination that may contribute to or be attributed to site contamination.

As RPM, you should determine if the site is a designated Solid Waste Management Unit (SWMU) under RCRA. You can obtain this information from EPA or the state agency. If the site is a designated SWMU, you are responsible for performing a RCRA Facility Assessment (RFA), which is similar to a PA. You also need to address questions concerning cultural/natural resources in addition to CERCLA requirements (see Section 3).

Documentation--The final activity of a PA is to document the conclusions, which involve:

- Implementation of a removal if an imminent threat is recognized, if there are effective methods to control the source of contamination, or if the removal will substantially reduce the possibility of human exposure to hazardous substances;
- Initiation of an RI/FS if it is obvious that a remedial action is needed;

- No further action, if reasonable efforts fail to indicate that a release of hazardous substances, pollutants, or contaminants has occurred or may occur (DD Preparation; and
- Initiation of an SI if available information is insufficient to support another determination.
- Since no site sampling activities are normally conducted during the PA, you or your E/C will not normally prepare Sampling Plans and Health and Safety Plans before the SI.

If, at any time during a PA, you recognize an immediate or imminent threat to public health, welfare, or the environment, you should take the following steps to initiate a removal action:

- Notify the Base Commander;
- Contact MAJCOM; and
- Approach a service center and or local contractors for emergency response support.

At the conclusion of the PA, your contractor or staff will prepare a Preliminary Assessment Report that documents all information gathered during the PA. Once you prepare the PA Report, you or the contractor can complete the EPA Preliminary Assessment form. You should submit this form along with the report to EPA or to the state agency for revised hazard ranking system (HRS) scoring.

SI Process Details

Figure 5-4 summarizes elements of the Site Inspection (SI) step. The SI is an optional step to be performed only when its purposes have not been met by the PA activities. The purposes of the SI are to:

- Satisfy data requirements for state and federal revised HRS scoring not met by the PA step.

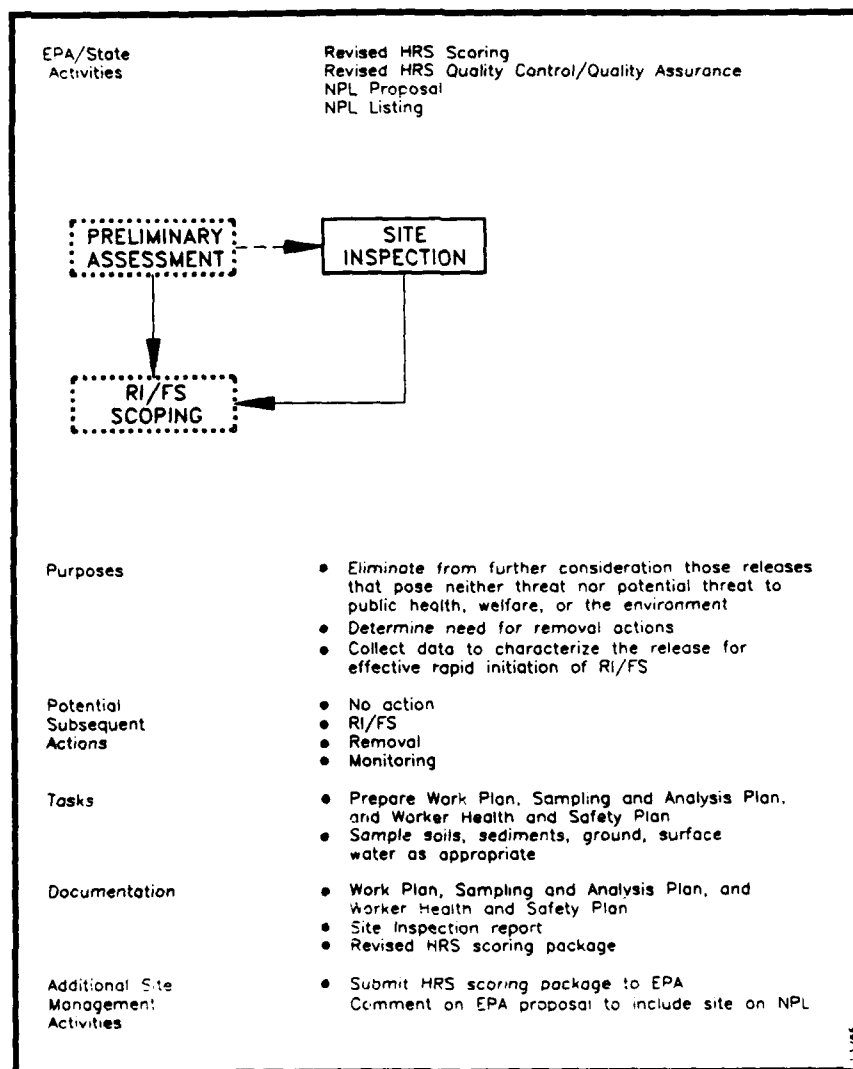


Figure 5-4
Elements of Site Inspection

- Collect data to characterize the release for effective and rapid initiation of the RI/FS. This should involve field screening if possible, with lab confirmation.
- Determine the next appropriate step.

The requirements for SI documentation are described in CERCLA/SARA, the National Contingency Plan, and in EPA Guidelines. These requirements relate to the development of work plans, sampling and analysis plans, health and safety plans, and to preparation of the SI Report and the revised HRS scoring package. If field activities (e.g., drilling, motor vehicle access) can intrude on sensitive environmental resources (e.g., wetlands), you should evaluate the activities in accordance with the National Environmental Policy Act (NEPA). If the site is a designated SWMU, you may have to conduct a RCRA Facility Investigation (RFI).

As the RPM, you must determine from the regulatory agency (EPA and state) what information is needed to complete the SI. You should reach an agreement with the agency about the details of SI activities before starting the SI.

Determine Information Needs--An SI consists of a visual inspection of the site and usually includes sample collection and analysis. Information that you may need can require collecting both on-site and off-site samples, as necessary, to determine the presence and nature of potential contamination in the soil, groundwater, surface water, or air. Groundwater samples may be collected from existing potable or irrigation wells.

Collect Samples as Needed--A limited number of environmental samples of the various sampling media should be collected and analyzed by the E/C to determine the presence or absence of contamination. Sample locations should include worst-case and background locations. The RACER system (being developed) may help you determine or verify the number of samples you need. The object of the SI sampling effort is to verify the presence of contamination, not to determine the extent of contamination.

Documentation--Since the SI usually involves on-site activities and field sampling, you or the service center will require the contractor to prepare and submit to you a project Work Plan, Sampling and Analysis Plan, and a Health and Safety Plan before beginning any field activities. You should make this requirement part of the contract SOW. Be aware that regulators may need to review and/or approve Work Plans. If the state is involved, their comments may have to be considered.

After the contractor has completed the SI, he submits to you the Site Inspection Report, which describes all SI activities and presents the results of all field investigations and sample analyses. The report should determine the presence or absence of contamination at the site.

The minimum goals of the Site Inspection Report are to:

- Redefine the source and nature of the release;
- Conclude whether no action, removal, or an RI/FS is warranted; and
- Provide a completed EPA Site Inspection Form if required by the EPA regional office, and a completed state form if required.

The revised HRS scoring package (40 CFR Part 300) required under the NCP is usually prepared by EPA. However, you or the E/C can also complete the revised HRS form and submit it with the SI Report to EPA. This helps keep the project moving.

Response Options

When the SI step is completed, you must determine the appropriate response action considering regulatory input. The response actions available include:

- Site closeout (no further action);
- Removal action;
- Monitoring; and
- RI/FS.

Figure 5-5 shows the response options at the end of the PA/SI. Refer to Section 3 for questions relating to NEPA considerations.

Site Closeout (no further action)--If you can show that a site no longer threatens the public health, welfare, or the environment, you should close the site out of the IRP by implementing a Site Closeout decision. The conditions necessary to justify a Site Closeout decision depend on when during the remedial action process you make the decision. If after the PA you have collected no evidence indicating hazardous substances or wastes were used at the site, you can close out the site. After the SI, if there is no possibility of direct contact, fire or explosion, and the soil, sediment, water, and air samples show that hazardous substances are not migrating and that they are unlikely to migrate from the site, you may be able to close out the site.

You should make site closeout decisions in conjunction with EPA and state and local regulatory agencies. For NPL or proposed NPL sites (sites with an revised HRS score of 28.5 or higher), EPA concurrence is required; for non-NPL sites, EPA concurrence is highly recommended. You must prepare a DD for non-NPL sites or NPL removals or group of sites for which the Site Closeout is selected. You should submit the DD to the appropriate state and EPA regulatory authorities for review and comment. Follow up on document submittal with a phone call to expedite the process.

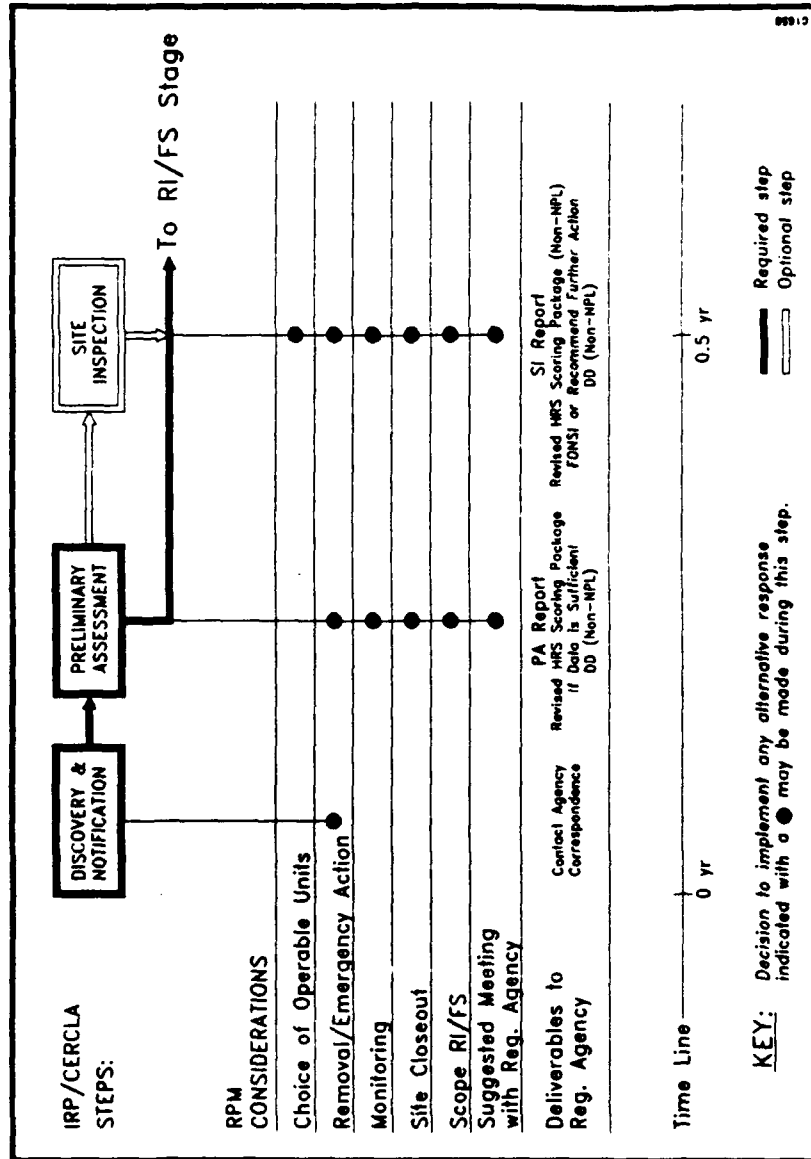


Figure 5-5
Response Options for PA/SI Stage

The final decision to close out a site should be the result of a consensus among all parties, as far as possible.

Emergency Removal Action--You can decide to implement a removal at any point during the investigation and cleanup process before selection of a remedy. The primary justification for implementing a removal is to decrease an imminent threat to the public health, welfare, or the environment. **Threats are considered imminent if the undesired effects can occur before a remedial action is implemented.** If you lack a reasonable estimate for a removal action schedule, you can use a default value of one year. You can also justify a removal action if it would prevent or retard the spread of contaminants, thereby reducing the degree or imminence of the threat or limiting the scope of subsequent remedial actions.

A removal action may be followed by further site work before close out. You must completely document the removal action to determine the need or requirement for follow up work and provide regulatory review. In most cases, the regulatory agency requires its own review of the removal action results or a site inspection to verify that the site is clean.

Non-time-critical Removal Action (Interim Treatment)--This type of action is implemented when imminent health threats are not present, but the action will prevent or retard the spread of contaminants (e.g., eliminating the source). An Engineering Evaluation/Cost Analysis (EE/CA) report may be required for non-time-critical removal actions. The EE/CA: 1) satisfies environmental review requirements for removal actions; 2) satisfies administrative record requirements for documenting the selection of removal actions; and 3) provides a framework for evaluating and selecting alternative technologies. This process is more abbreviated than a focused feasibility study (FS) which is discussed in the next section.

Monitoring--You can use monitoring to detect whether contaminants exist at a site and, if so, to track the concentrations and spread of contamination from the site. The two types of monitoring, which are distinguished by when they occur in the IRP, are Long-Term Monitoring and Interim Monitoring. You may present the basis for

selecting long-term monitoring in a Site Inspection Report. Alternatively, you may prepare a separate decision document to present the basis for long-term monitoring. For interim monitoring, you (or your E/C) should prepare a Sampling and Analysis Plan for the site or group of sites.

Remedial Investigation/Feasibility Study--If site contamination is detected during the PA/SI, and other response actions (site closeout, removal action, monitoring) are not appropriate, you should begin the process of scoping the RI/FS.

Site Health Assessments

Site Health Assessments (SHA) are a good source of health risk information for you as the RPM. You may need to initiate or update an SHA with the Base Bioenvironmental Engineer (BEE). On 6 July 1990, the Air Force and the Agency for Toxic Substances and Disease Registry (ATSDR) completed an IAG for ATSDR to provide health assessments and related activities at NPL or proposed NPL Air Force facilities. This agreement initiates the requirement in CERCLA. In addition to health assessments, ATSDR will provide the Air Force with pilot or full-scale epidemiological studies of health effects for exposed individuals, health surveillance programs for exposed populations, health consultations, and other related health activities to include emergency response actions and health education. HQ USAF/CEVR coordinates funding for these activities, while the BEE coordinates the actual assessments.

The purpose of the health assessments is to assist in determining whether actions should be taken to reduce human exposure to hazardous substances from a USAF facility, and whether additional information on human exposure and associated health risks is needed and should be acquired by conducting epidemiological studies, establishing a registry, establishing a health surveillance program, or through other means [CERCLA as amended, Section 104(l)(6)(G)]. Note that the health assessment may contain a majority of the toxicity risk and exposure information needed for the baseline risk assessment in the RI/FS process.

Transition from SI to RI/FS

As the RPM, you may conduct the following activities during the RI/FS scoping:

- Identify the RI/FS study area.
- Estimate tentative remedial response alternatives and identify authorities with jurisdiction.
- For sites proposed for or listed on the NPL, begin discussions with EPA about the Federal Facility or Interagency Agreement (FFA/IAG).
- Collect additional data if needed.
- Prepare SOW for subsequent RI/FS steps.
- Identify likely response scenarios, potentially applicable technologies, and operable units that may address site problems.
- Determine whether the remedial action is likely to be a major federal action, and if it will significantly affect the environment.
- Identify the need and set priorities for removals, operable units, and continued monitoring requirements while the RI/FS is being conducted.
- For NPL or proposed NPL sites, initiate or review a site health assessment to determine whether actions should be taken to reduce human exposure to hazardous substances. The point of contact for these assessments is the Base Bioenvironmental Engineer (BEE).
- Identify preliminary federal contaminant- and location-specific applicable or relevant and appropriate requirements (ARARs) based on available data.

Project Management

- Establish a Technical Review Committee (required for NPL sites, recommended for non-NPL sites) with representatives from the RPM's technical staff, EPA, state and local agencies, and the local community.
- Initiate an administrative record and establish a local information repository. The administrative record consists of all documents that have a legal bearing on the remedial action. Appendix I gives an example of the information distributed to the administrative record.

•• = E/C or RPM may perform these activities.

Figure 5-6 lists the elements of the RI/FS scoping step and shows how key elements are related.

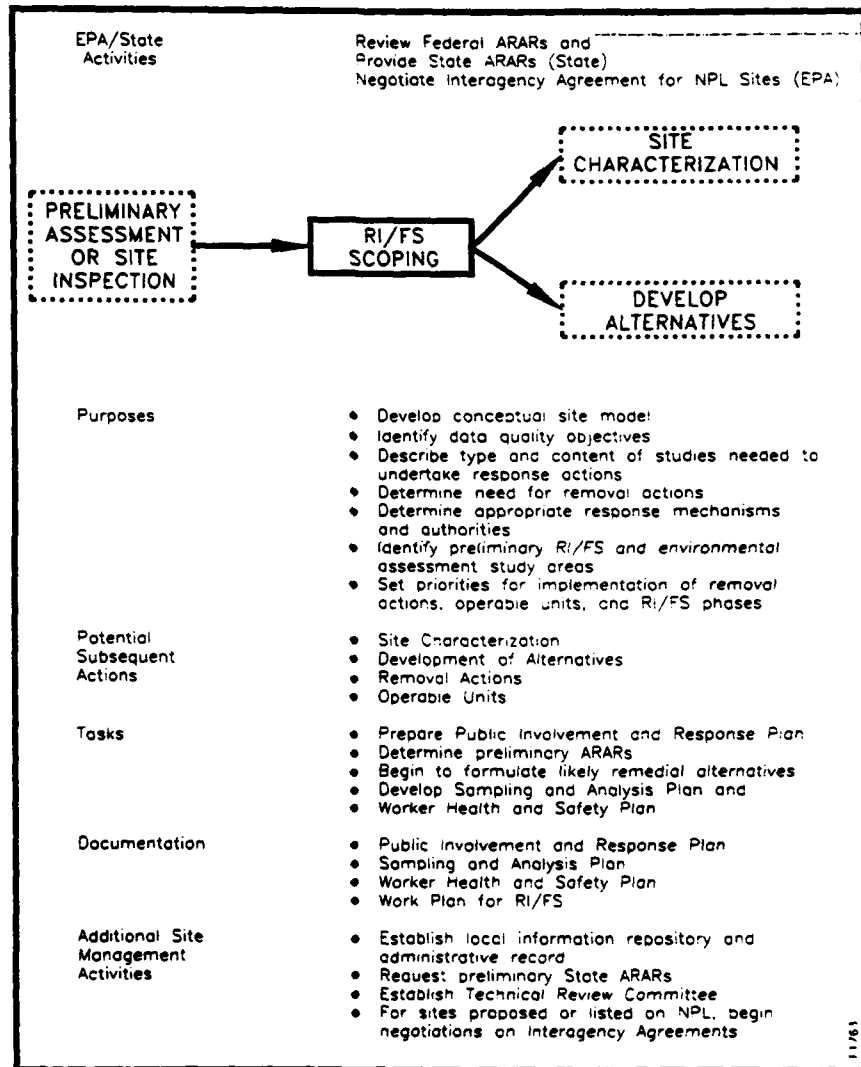


Figure 5-6
Elements of the RI/FS Scoping

Project Management

5.3.3 Remedial Investigation (RI)

The RI is the investigative phase of the remedial action process and is designed to:

- Determine the nature and extent of contamination;
- Determine the nature and extent of the threat to human health and the environment; and
- Provide a basis for determining the types of response actions to be considered.

Figure 5-7 shows the elements of the Site Characterization step of the RI. The Remedial Investigation/Feasibility Study (RI/FS) phase of the remedial action process is generally performed as one phase. However, in this manual, the RI and the FS are discussed separately. The Site Characterization and Treatability Investigation are the RI portion of the RI/FS.

The project team during the RI consists of a number of individuals, organizations, and the public centered around the RPM, as shown in Figure 2-1. As RPM, it is your responsibility to coordinate and guide the efforts of the team members to successfully achieve the goals of the RI.

RPM Responsibilities

As RPM, your responsibilities are the same as those discussed under RPM responsibilities for the PA/SI. Generally, however, the RI budget is larger, the period of performance is longer, and the technical requirements are greater than they are for the PA/SI.

Typical Scheduling--Depending on the complexities of the project, the RI can take up to two years to complete, but it normally lasts about 18 months for AF projects. As RPM, you should develop an RI schedule with milestones tied to completion and approval of project deliverables such as Work Plans, RI Report, etc. If the Base

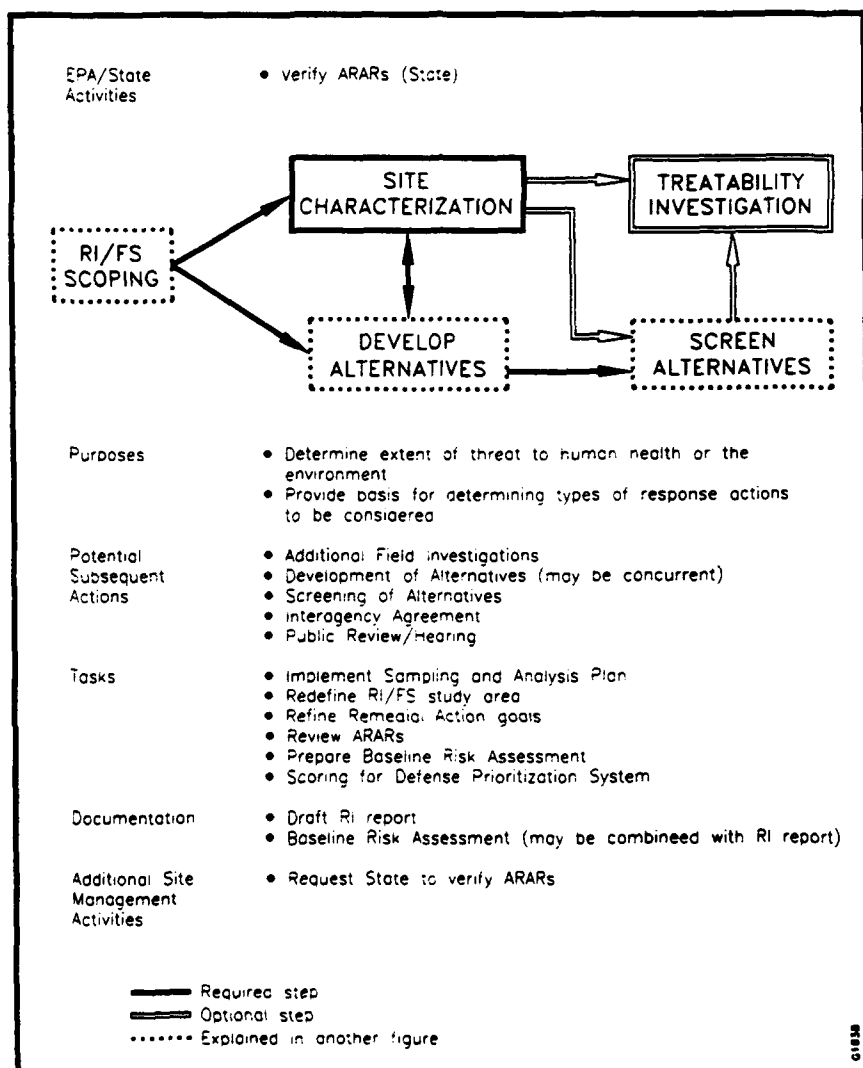


Figure 5-7
Elements of the Site Characterization

has negotiated and signed a Federal Facility Agreement (Interagency Agreement) with EPA, you should coordinate the project schedule with the schedule in the Agreement. Penalties can be assessed if Agreement deadlines are missed.

Some projects require fast-track scheduling. Reasons for fast-track structuring include the need to respond to an imminent threat, the funding schedule, and public awareness. This process applies to all sites (i.e., where the goal is to close out the site as soon as possible with a Record of Decision. Mechanisms for fast tracking the FS are discussed in Section 5.3.4.

Statement of Work (SOW) Preparation--As with the PA/SI, you (or your service center) need to prepare a project Statement of Work. You should base development of the SOW on specific requirements of the regulatory agencies and on the data needs identified in the PA/SI. You should include a project schedule and the technical and deliverable requirements in the SOW. Have your technical staff help you prepare and review the SOW.

RI Process Details

Some of the processes that you will perform or manage during the Site Characterization stage of the Remedial Investigation are similar to, but more involved than, the processes performed during the PA/SI. There are also new processes that you must plan for in the RI which were not part of the PA/SI. The processes are as follows:

- Obtain direct input from regulatory agencies to establish ARARs -- You should begin to do this during the RI/FS scoping stage so you can define the RI/FS data quality objectives in terms of the ARARs. Refer to EPA/540/6-87/003 for data quality objective guidance.
- Identify operable units -- if possible, subdivide response actions into operable units.
- Prepare Work Plan -- the E/C prepares this in response to the SOW.

Project Management

- Prepare Sampling and Analysis Plan -- the E/C prepares this in response to the SOW.
- Prepare Site Safety and Health Plan -- the E/C prepares this in response to the SOW.
- Prepare a community relations plan -- coordinate these efforts between the E/C, Base JA, and Base Public Affairs Office.
- Conduct field investigation -- define the limits and characterize the extent of contamination. Minimize mobilization/demobilization events by scheduling continuous field work through completion for all sites.
- Provide input to the development of alternatives -- determine the need for remedial action or operable units.
- Perform treatability study (optional) -- collect data on which you can base the selection of a remedy.
- Initiate baseline risk assessments if you have enough data -- the risk assessment provides the basis for a response action or no action.
- Receive regulatory review and concurrence.
- Initiate removal action (optional).
- Implement Site Closeout (optional) -- the Base and MAJCOM make the decision to close out the site.

Some of these processes are similar to, although usually more complex than, the corresponding processes performed during the PA/SI. New activities that appear in the RI/FS are listed here.

Identify Operable Units (OUs)--An operable unit is an action taken as one part of an overall site cleanup. For example, a treatment system could be installed to halt rapidly spreading ground-water contaminants at one of several contaminated sites on base. A number of operable units can be used in the course of a site cleanup.

Consider grouping sites with similar types of contamination into operable units. Advantages of using operable units include:

- Increased management flexibility (e.g., a combination of contaminated areas can be remediated at one time);
- Ability to address areas of worst (i.e., highest priority) contamination first with available funds; and
- Ability to group sites being remediated according to governing regulation (e.g., RCRA vs. CERCLA).

Data Quality Management--Usable data are required to complete RIs, to support risk assessments and RDs, and to provide a basis for evaluating the performance of RAs. You and/or the service center must:

- Determine how much and what quality of data are needed. The RPM must have a bias toward cleanup versus continued and often prolonged characterization studies (RIs). It is seldom possible to acquire the vast amount of data needed to characterize environmental conditions precisely. Therefore, a compromise must be reached on how much data is sufficient to reasonably predict (characterize) environmental conditions.
- Identify the intended uses of historical sampling data (e.g., site characterization, risk assessment, engineering design) so the data can be used to support ongoing RI/FS efforts. You should ensure that such data reviews occur in accordance with EPA guidance document Data Quality Objectives for Remedial Response Activities volume 1. Some data generated at bases may not meet criteria for use, because of documentation gaps, quality problems, or both. It is imperative that what is known about the data be documented and compiled and the data assessed. The outcome of this assessment can be used to determine possible alternative or modified data uses. The RPM

should ensure that data with known levels of uncertainty are used wherever possible, but only if proper documentation exists and the rationale for their use are discussed.

Data Management and Analyses--Identify, assembly, and electronically integrate all quality-assured environmental restoration data at your base to support environmental restoration decision making.

Environmental restoration decisions require a thorough understanding and technical analysis of all data collected during multiple environmental site characterization efforts. Electronic archiving, retrieval, and display systems are necessary to manage the data. You, as the RPM, should:

- **Require that collected data be loaded into the Installation Restoration Program Information Management System (IRPIMS) as soon as possible.** This will facilitate a comprehensive review of all current and historical environmental restoration data. Where critical data exist only on paper, efforts to convert the data to an electronic format should begin soon enough to ensure that the data are available during the earliest phases of the disposal process.
- **Establish a data integrator role.** The integrator should be an IRP-independent contractor responsible for identifying data and documentation needs, evaluating the availability and quality of existing data, planning for filling data gaps, integrating related spatial and attribute data into consistent data sets, reviewing data uses by contractors and others to ensure consistency, and reporting regularly to program managers on the status of data management in the restoration process.
- **Ensure the availability of data management and analysis tools to analysts.** Analysis tools for data integration include quality control software, statistical

analysis software, relational databases, geographic information systems (GISs), and specialized earth science modeling and visualization tools. These tools make possible the organization, analysis, integration, and visualization of data so that meaningful maps can be made. GISs are tools particularly suited to integrate map and planning information, aid in technical analysis and program decision making, and communicate environmental and disposal plans and results.

- **Mandate use of a "template" approach to building archival records.** All bases share certain common data requirements that can be used to generate a generalized template for standardizing and building archival records. Data sets are derived from the base comprehensive plan and from the environmental restoration process.
- **Build an integrated archival record of the environmental restoration processes at your base.** A complete and internally consistent archival record for technical decisions should be created and preserved for future reference, when questions may be raised by the public, the regulators, or by Congress.

Background Concentrations of Contaminants--Determine background concentrations of contaminants for inclusion in conceptual site models.

Background concentrations must be established to provide critical input to a conceptual site model and help determine the effects a site has had on the chemical quality of a medium such as groundwater, surface water, or soil. These effects must be determined before defensible estimates of the risks posed by a site can be made.

Conduct Field Investigation--Select field investigation methods used in the RI to meet the data needs you established during

the scoping process and outlined in the RI Work Plan. You can find specific field investigation methods in A Compendium of Superfund Field Operations Methods (EPA, 1987) and the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document (EPA, 1986). In addition to preparing and implementing the Work Plan or Sampling and Analysis Plan, you may need field support activities in the following areas:

- Ensuring that site access has been obtained;
- Obtaining other contractors (drillers, surveyors, analytical laboratory, etc.);
- Procuring field equipment;
- Coordinating with analytical laboratories; and
- Procuring on-site facilities for office and laboratory space, decontamination areas, etc.

You can make these activities the responsibility of your prime contractor, but if you do, you need to detail these responsibilities in the RI scope of work. Even if the contractor is responsible for these activities, you will need to help coordinate some of them.

You need to constantly evaluate the impact of the RI efforts on scope, schedule, and cost. On-site screening laboratory results may be sufficient for determining the location of monitoring/sampling wells instead of Certified Laboratory Program (CLP) results. Typically, CLP results are needed to support the FS recommendations, but are not necessary in laying out the sampling locations. It is very easy to let the scope and schedule become overextended and drive the cost up EXPONENTIALLY. As the RPM, it is your job to oversee these activities if they are not handled by a service center.

Develop and Screen Alternatives--You need to develop an appropriate range of cleanup options which you will analyze more fully in the detailed analysis phase of the FS.

Perform Treatability Studies--As you collect site information during the RI, you may identify additional data needed to

adequately evaluate alternatives. You can use treatability studies (e.g., bench-scale and pilot-scale) to better evaluate technology performance.

Develop a Conceptual Site Model--To focus the data collection phases of the RI at a site and reduce the number of sampling rounds, a conceptual site model must be developed in the early stages of the process. This model identifies the source(s) of contaminants, the probable contaminated media, the likely migration pathways, and the probable extent of migration based on such available information as the topography, hydrology, geology, and geochemistry of the area, as well as the physical properties of the contaminants (e.g., volatility, water solubility). Using such a model should allow the design of an effective Sampling and Analysis Plan (SAP) for the site that will result in the generation of information needed to assess risk. This design should include the locations of sampling points for various media to determine both the extent of contamination and background concentrations for contaminants. Using the conceptual site model early in the site investigation and refining it as better information becomes available maximizes the usefulness of data collection and will identify gaps in information that must be filled to complete the risk assessment. Guidance concerning the development of conceptual site models and the performance of risk assessments for human health and the environment can be found in the Handbook to Support the Installation Restoration Program (IRP) Statements of Work, volume 1 and in General Guidance for Ecological Risk Assessment at Air Force Installations.

ARARs--ARARs and risk assessment can be used to identify the specific contaminant concentrations required to achieve protection for an area. Develop a clearly applicable subset of existing standards with the EPA and the state through proactive project team meetings early on in the RI/FS process. This should limit the ARAR issue to relevant and appropriate requirements. Consider ARAR waivers and the use of alternate concentration limits (ACL) during the alternatives evaluation process in the FS.

Section 121(d) of CERCLA provides that, under certain circumstances, a chemical-, location-, or action-specific ARAR may be waived. The six ARAR waivers provided by CERCLA are as follows:

- **Interim Measures Waiver.** Available for interim RODs, or early source control or groundwater remedial actions.
- **Equivalent Standard of Performance Waiver.** Used to waive a required design or operating standard where an alternative design can achieve equivalent or better results.
- **Greater Risk to Health and the Environment Waiver.** Used to prevent damage to natural resources or historical landmarks that may result from implementation of a remedial alternative.
- **Technical Impracticability Waiver.** Used commonly if defensible groundwater modeling during the feasibility study indicates that chemical-specific ARARs are not attainable in a given aquifer within a reasonable amount of time.
- **Inconsistent Application of State Standard Waiver.** Available if it can be demonstrated that a state has not applied an ARAR consistently in other site remediations.
- **Fund-Balancing Waiver.** Used if a required remedy is inordinate in cost with minor benefit to human health and the environment.

This ARAR discussion is specific to the CERCLA process. Because some bases are subject to RCRA applicability, similar waiver provisions pursuant to the RCRA process, particularly the corrective action process outlined in Subpart S as proposed in 40 CFR 264, must be reviewed. Similar waiver provisions are available for interim measures (Section 264.540) and technical impracticability (Section 264.531).

ARARs should be identified during scoping of an RI/FS and refined during the RI to ensure the protectiveness of remedies. In addition to these laws, bases should be aware of alternate

concentration limits (ACLs) for groundwater remediation. ACLs are provided for in Section 121(d)(2)(B)(ii) of CERCLA, and the EPA has developed guidance on the application of ACLs in accordance with RCRA regulations in 40 CFR 264. ACLs are available as ARARs for groundwater; as implied by their name, they are concentration limits that vary from maximum concentration limits (MCLs). A contaminant release analysis, followed by a fate and transport analysis, can be used to develop ACLs at compliance points based on meeting MCLs at exposure points. This provision in the regulations allows contaminant levels in groundwater to be above MCLs, provided that safe levels are met at the facility boundary or in some cases offsite.

Perform Baseline Risk Assessments--The baseline risk assessment is a key part of the RI process. It evaluates the potential threat to human health and the environment in the absence of any remedial action. The cleanup levels and respective remedial alternatives cannot be determined accurately until the ARARs are determined. Figure 5-8 shows the key aspects of the risk assessment. "Risk" is the likelihood of injury, disease, or death. "Environmental risk" is the likelihood of injury, disease, or death resulting from human exposure to a potential environmental hazard. The AF performs a risk assessment during the RI, as shown in Figure 5-9. In conjunction with regulatory guidance, you then use the risk assessment results to define the appropriate risk management techniques, as shown in Figure 5-10. The health expert follows the steps shown in Figure 5-8 to characterize the risk the site poses to public health, welfare, and the environment.

Response options available to you after you have completed the Remedial Investigation are shown in Figure 5-11. You or your contractor must at least conduct a Feasibility Study to evaluate the alternative methods for remediating the site.

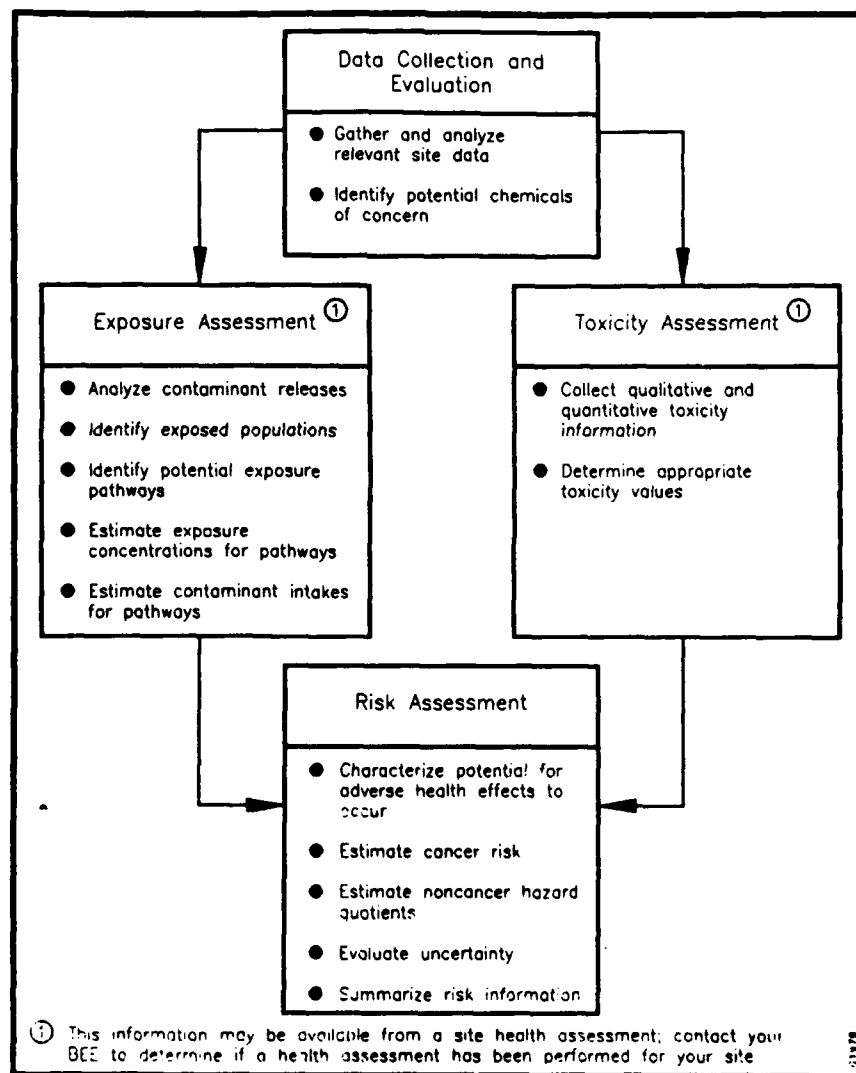


Figure 5-8
Key Aspects of Health Risk Assessment

RISK ASSESSMENT

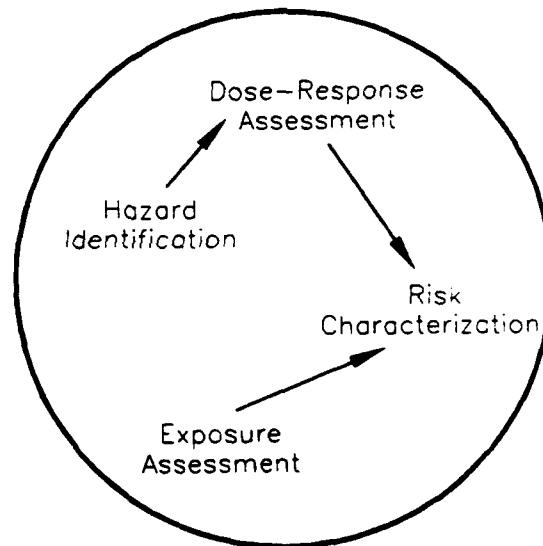


Figure 5-9
Risk Assessment

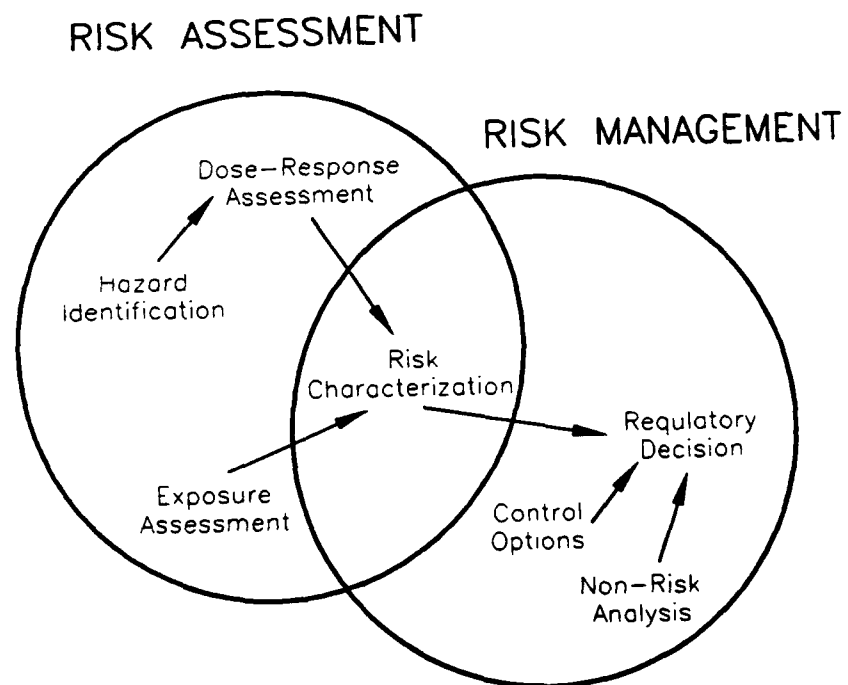


Figure 5-10
Determining Appropriate Risk Management Techniques

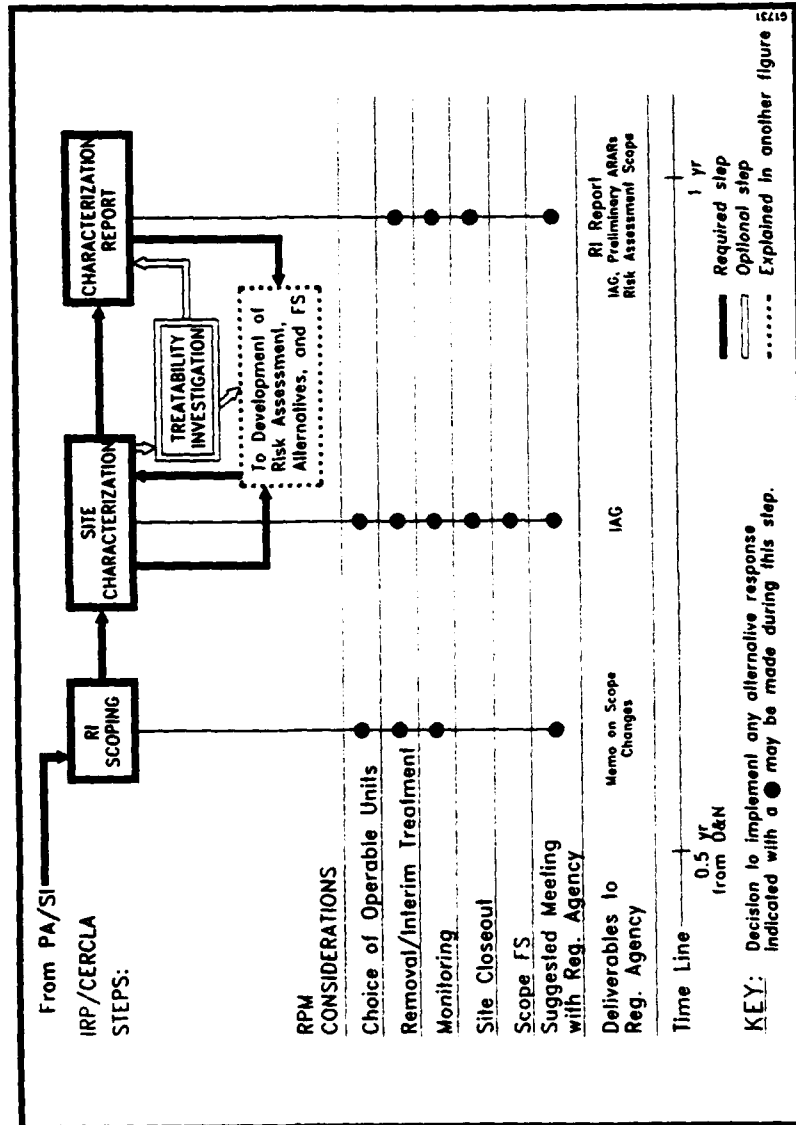


Figure 5-11
Response Options Available After Completion of SI

Project Management

5.3.4 Feasibility Study (FS)

The Feasibility Study (FS) is an iterative process that interacts with the RI. The combined RI/FS leads to the selection of an optimal method for remediating the site (Remedial Design/Remedial Action). As the FS develops, you may identify additional data and field investigation requirements. Unexpected findings may require you to define new tasks outside the original scope of work.

The overall objectives of the FS are to:

- Develop and evaluate potential remedies that permanently and significantly reduce the threat to public health, welfare, and the environment;
- Select a cost-effective remedial action alternative that mitigates the threat(s); and
- Achieve consensus among EPA, state, and local authorities regarding the selected response action and the concurrence of EPA in the case of NPL sites.

The Feasibility Study should begin during Site Characterization, but the FS report is generally separate from the RI report.

RPM Responsibilities

Your responsibilities are the same as those for previous stages of the remedial action process. In most instances, the contractor and the service center that performed the RI will also perform the FS. Since the FS leads to Remedial Design, you will interact more with the Base CE and maintenance personnel than you did before this stage of the remedial process.

Typical scheduling--Since the FS is an integral part of the RI, the FS schedule is tied to the RI schedule. Conducting a full-scale FS with an RI can take approximately 18 months of intermittent work. The FS report should be completed within about three months of the

RI report. In some cases, you may want to require your E/C to submit a sequence of reports that compose the FS, as follows:

- Development of alternatives report;
- Screening of alternatives report; and
- Detailed screening of alternatives report.

Table 5-4 shows the reporting and communications that can occur during the development and screening of alternatives. This level of communication between you, the E/C, the regulatory agency, and the Base helps you identify data gaps during site characterization, reach agreement on technology screening and development, and obtain input on action-specific ARARs.

To determine the need for continued cleanup effort and eventually develop the proper alternatives, you must become familiar with the applicable, relevant, or appropriate requirements (ARARs) that apply to site cleanup. You should be aware that state cleanup levels may be more stringent than federal cleanup levels. State cleanup levels vary from state to state, as shown in the example for petroleum contaminants listed in Table 5-5. Cleanup criteria also may vary according to the program that has jurisdiction. It would be a good idea to contact the Regional Compliance Office (RCO) or other federal facilities in the same state or region to determine the cleanup levels they are using. The RCO should be able to assist you if you are unable to obtain the cleanup levels or if you have a question.

SOW Preparation -- The technical SOW for the Feasibility Study is less detailed than the SOW for the Remedial Investigation. Since the RI/FS is considered a combined process, it is appropriate to include the RI and FS in one statement of work. In the FS statement of work you will need to include a project description, requirements for conducting the FS in terms of guidance documents (i.e., USEPA, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA), references to previous studies, including the RI report, and a timetable. The most important requirements are following the USEPA guidance document and coordinating activities with the appropriate regulatory agencies.

Table 5-4

Reporting and Communication During Development
and Screening of Alternatives

Information Needed	Purpose	Potential Mechanisms for Distribution Information
Remedial Action Objectives	For regulatory agency and A-E to identify the cleanup objectives and criteria necessary to identify and evaluate remedial technologies and alternatives for Air Force to obtain regulatory agency review and comment	Meeting Tech memo Documented telephone call
All potential technologies included for consideration	For regulatory agency and A-E to identify potential and innovative technologies; for Air Force to obtain regulatory agency review and comment	Meeting Tech memo Documented telephone call
Need for additional field data or treatability studies	For regulatory agency and A-E to determine whether more field data or treatability tests are needed to evaluate selected technologies; for Air Force to obtain regulatory agency review and comment; for rescheduling any deliverable deadlines	Meeting Documented telephone call Preliminary characterization report or tech memo
Process evaluation and alternative development	For regulatory agency and A-E to communicate and reach agreement on technology screening and alternative development; for Air Force to obtain regulatory agency review and comment	Meeting Tech memo Preliminary technologies screening report Preliminary alternatives screening report
Results of alternative screening (if conducted)	For regulatory agency and A-E to communicate and reach agreement on alternative screening; for Air Force to obtain regulatory agency review and comment	Meeting Tech memo FS report

Table 5-4
(Continued)

Information Needed	Purpose	Potential Mechanisms for Distribution Information
Identification of action-specific ARARs	For Air Force to obtain input from the regulatory agency on action-specific ARARs	Meeting Letter RI/FS report ARARs determination tech memo
Need for additional investigation	For Air Force and A-E to determine whether additional investigations are needed to evaluate selected alternatives; for Air Force to obtain regulatory agency review and comment	Meeting Tech Memo FS report

Table 5-5

Example Cleanup Requirements for TPH in Contaminated Soils

STATE (PARTIAL LIST ONLY)	PETROLEUM CONTAMINATED SOIL CLEANUP LEVELS
	1988-90 (PPM-TPH)
ALABAMA	100 if >5 ft to Groundwater (GW), 10 otherwise
ALASKA	50 for Gasoline, 100 for Diesel
ARIZONA	100
ARKANSAS	Case by Case Basis
CALIFORNIA	10-1000 for Gasoline, 100-10,000 for Diesel
CONNECTICUT	50
FLORIDA	10-500 for Gasoline, 50 for Diesel
GEORGIA	100 if within 1/2 mi of priv. or 3 mi of pub. well, 500 otherwise
IDAHO	100 for Gasoline, 1000 for Diesel
ILLINOIS	None for TPH, Benzene - .025, BTEX - 16.025
KENTUCKY	Background Concentration
MISSISSIPPI	100 (BTEX) for Gasoline, 100 TPH for Diesel
MISSOURI	10
NEW MEXICO	50 (TAH) for Gasoline, 100 TPH for Diesel
OREGON	40-130 for Gasoline, 100-1000 TPH for Diesel
SOUTH CAROLINA	10 (BTEX) for Gasoline, 100 TPH for Diesel
TENNESSEE	100-500 Drinking Water Area, 250-1000 Non-Drinking Water Area
VERMONT	20 (TAH), Case by Case Basis
WASHINGTON	100 for Gasoline, 200 for Diesel
WYOMING	10 if <50 ft to GW, 100 if >50 ft to GW

BTEX = Benzene, Toluene, EthylBenzene, Xylenes; TAH = Total Aromatic Hydrocarbons

FS Process Details

Figures 5-12 and 5-13 show elements of the FS process. Figure 5-14 summarizes the process and RPM considerations for each stage of the Feasibility Study.

Determine Focused Feasibility Applicability (Fast Track)--

When circumstances limit the number of available options, and therefore the number of available alternatives developed, a feasibility study that focuses on two or three alternatives may be applicable. This may significantly reduce the cost of remediation by eliminating the time spent reviewing ineffective remedial methods. Also, if a cleanup approach is being pursued for similar contaminants and site conditions, you should try to get regulator concurrence to take the same option in an expedited manner, thus reducing the time needed to start cleanup activities.

Identify Treatment Technologies--As RPM, you need to work closely with the service center to determine the capability of current technologies to meet the proposed cleanup standard. If current technologies cannot cost-effectively clean up to the standard, then you should consider an interim system. When a technology is developed to meet the standard, it would be sized to continue the cleanup from the point the interim system reached. You also need to track the effectiveness of the systems.

Develop Remedial Alternatives--Develop a list of remedial alternatives in accordance with EPA guidance. Table 5-6 presents an overview of remedial technologies available for soil and water contamination. The development of alternatives requires:

- Identifying remedial action objectives;
- Identifying potential treatment, resource recovery, and containment technologies that satisfy these objectives; and

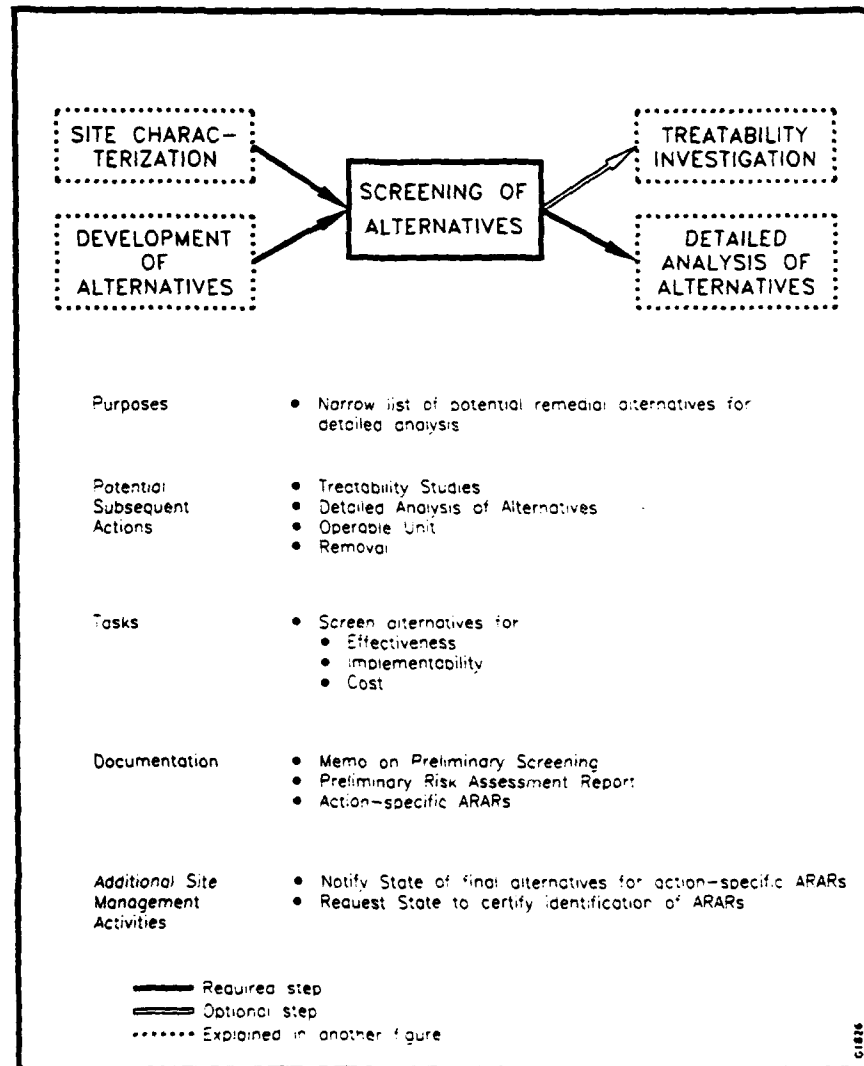


Figure 5-12
Elements of the FS Process - I

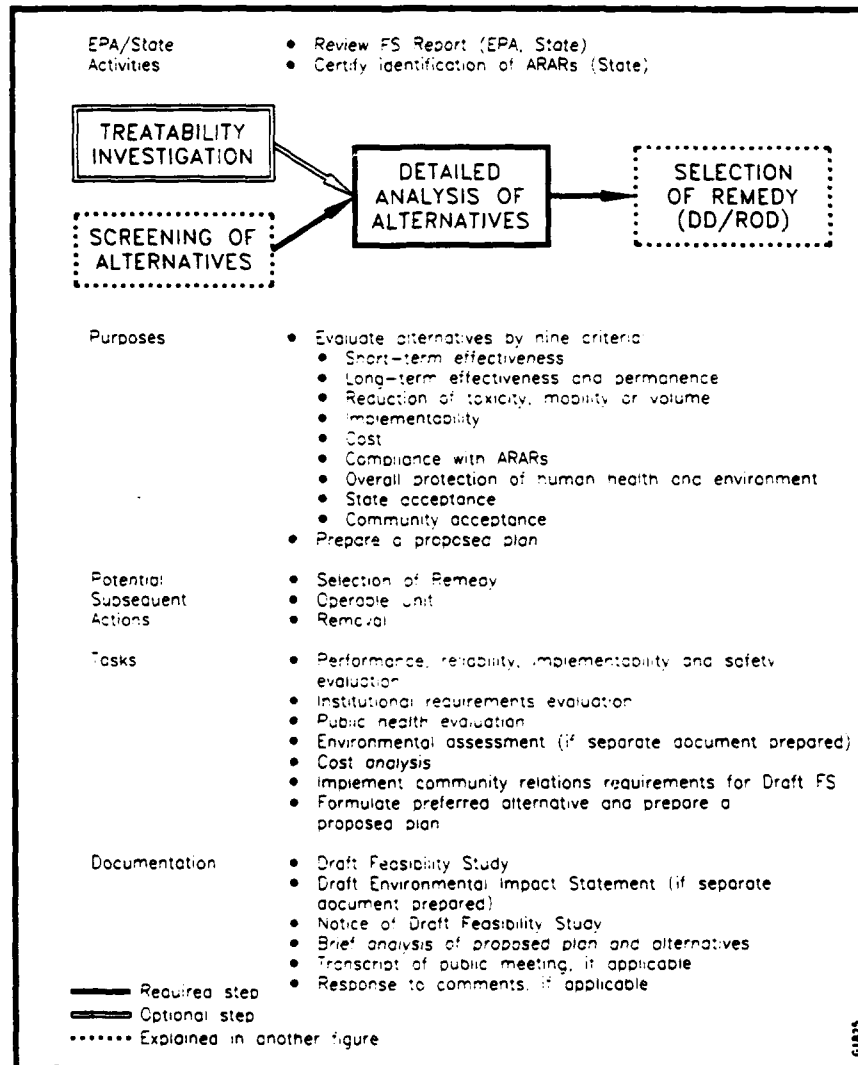


Figure 5-13
Elements of the FS Process - II

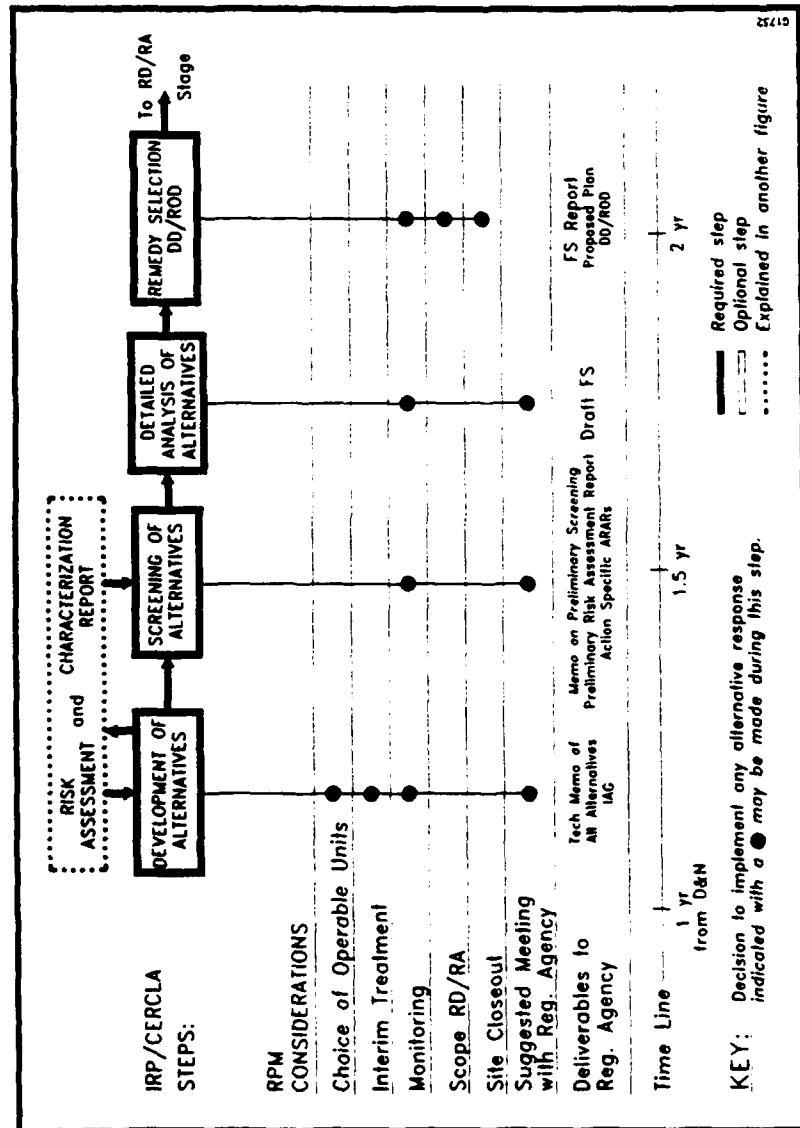


Figure 5-14
Response Options for the FS Process

5-60

[illegible]

- Assembling technologies and their associated containment or disposal requirements into alternatives for the contaminated media at the site or for the operable unit.

Conduct Treatability Studies if Necessary--You can conduct treatability studies at any time during the RI/FS phase. If you initially identify a potential remedial alternative, but are unsure of its effectiveness to meet ARARs, it may be worthwhile to conduct a treatability study to further screen the technology.

Initial Screening of Alternatives--After you or your contractor has developed a list of remedial technologies, you will need to screen the technologies based on their effectiveness, ease of implementation, and cost.

Detailed Analysis of Alternatives--When sufficient data are available, evaluate alternatives in detail to further define the alternatives as necessary and to perform a comparative analysis against the nine evaluation criteria, which are as follows:

- Overall protection of human health and the environment;
- Compliance with ARARs;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume;
- Short-term effectiveness;
- Implementability;
- Cost;
- State acceptance; and
- Community acceptance.

The results of the detailed analysis provide the basis for identifying a preferred remedial alternative and preparing a remedial design. After

completing the detailed analysis, submit the FS report and the proposed plan for public review and comment. The results of the detailed analysis support the final selection of a remedial action and form the basis for the Record of Decision (ROD).

Required Regulatory Review and Involvement

Table 5-4 demonstrates the early involvement of regulatory agencies during the Feasibility Study. As the RPM, you are responsible for initiating this involvement or ensuring that it is written into the E/C's contract as an E/C responsibility. During the detailed analysis, one of the nine evaluation criteria is state (support agency) acceptance, which involves the technical and administrative issues and any concerns the support agency may have regarding each of the alternatives. After the draft RI/FS report(s) is prepared, the AF obtains the regulatory agency's review and concurrence, the public's review and comment, and local agency and PRP input, if appropriate. The RI/FS report also provides a basis for helping EPA and the Air Force agree on the remedy, and documents the development and analysis of alternatives.

5.3.5 Troubleshooting

The problems that can arise during the remedial action process are too numerous to list, but some relatively common problems and possible solutions are listed below:

Problem: Work or Report is inconsistent with scope requirements.

Solution: Meet with contractor and discuss the reason(s) for the inconsistency. Identify contractor actions to resolve problem or modify the scope. It's your responsibility to identify these problems as early in the process as possible to avoid Air Force and contractor conflicts.

Problem: Regulatory agency disapproves of Work Plans or other work products.

Solution: Involve regulatory agencies early to review SOW, Work Plans, and reports. Get their decisions in writing.

Problem: Work products are inconsistent with the SOW or Work Plan; technical deficiencies exist in submittals or other work products; unreasonable delays occur while performing remedial action activities; or procedures are inconsistent with the NCP.

Solutions:

- Request an explanation from the contractor of the failure to perform satisfactorily and a plan for addressing the necessary corrective measures;
- Require a schedule for submission of the corrected work product;
- Invite the contractor to discuss the matter in a conference;
- Recommend preparing and sending a statement to the contractor that stipulates that damages may accrue or are accruing, that the project may be terminated, and/or that civil action may be initiated if appropriate actions are not taken to correct the deficiency.

Problem: Community response to the remedial action is negative.

Solution: Prepare and implement a community relations plan early in the RI/FS process; obtain direct involvement from the Base Public Affairs Office.

Problem: The E/C says there are insufficient funds available for the required technical work.

Solutions:

- Check to see if the project has been overscoped. If not, ask for more funds. If so, rescope the project. To the extent possible, divide the project into phases. The divisions are determined by the priority of the work to be done.
- Investigate why the project was not contracted on a fixed-price basis (see Section 6).

Problem: Report is submitted and allowed to wait at regulator's office with no follow-up contact.

Solution: Follow up document submittal with a phone call to 1) ensure that the regulator received the document and 2) elicit some commitment with respect to review turnaround time. Inform regulators before submittal of the delivery.

To avoid many problems that can occur, you should take the following actions early:

- Establish points of contact.
- Determine which agencies have what level of authority at your site. Normally, EPA and state and local agencies have only review and comment authority over the IRP. For NPL sites and for installations seeking RCRA permits, however, EPA authority is greater.
- Ask all parties to submit potential ARARs.
- Inform all parties when major tasks or steps are to be implemented.
- Agree up-front on the means for resolving disputes. Be aware that EPA has final authority.
- Allow review and comment on procedures and reports at appropriate points.

Refer to the Air Force Installation Restoration Program Management Guidance for additional details on complicating factors and possible responses that can affect your IRP projects.

5.4 Record of Decision, Decision Document

You must document the remedy selection in a Record of Decision (ROD) or a decision document (DD) (Figure 5-15). Note that IAG and FFA are used synonymously throughout this text. You can require your E/C to prepare the ROD or DD by including this task in the project Scope of Work. The documentation requirements vary, depending on whether the site is on the NPL:

- Non-NPL Site--Decision Document (DD) and any necessary technical support documents are prepared according to state regulatory requirements.
- NPL Site--Record of Decision (ROD) is written.

Entering into an FFA is not normally a post-RI/FS task. It is advantageous to enter into a multi-party agreement earlier to achieve concurrence with regulators and the public.

5.4.1 RPM Responsibilities

As the RPM, you are responsible for preparing (or having your contractor prepare) the appropriate documentation (ROD or DD, responsiveness summary), identifying all participants, and coordinating the reviews and comments of all parties and agencies. If the Air Force, EPA, and state enter into an FFA at this stage, you may need to coordinate these efforts. Be sure to involve your Base JA and MAJCOM in this process.

5.4.2 ROD, DD Details

After a remedy has been selected through the RI/FS process, you must document the selection appropriately. The documentation requirement even applies to fast-track projects. If you have maintained effective communications with all participants throughout the project, document review should not impede the project's progress.

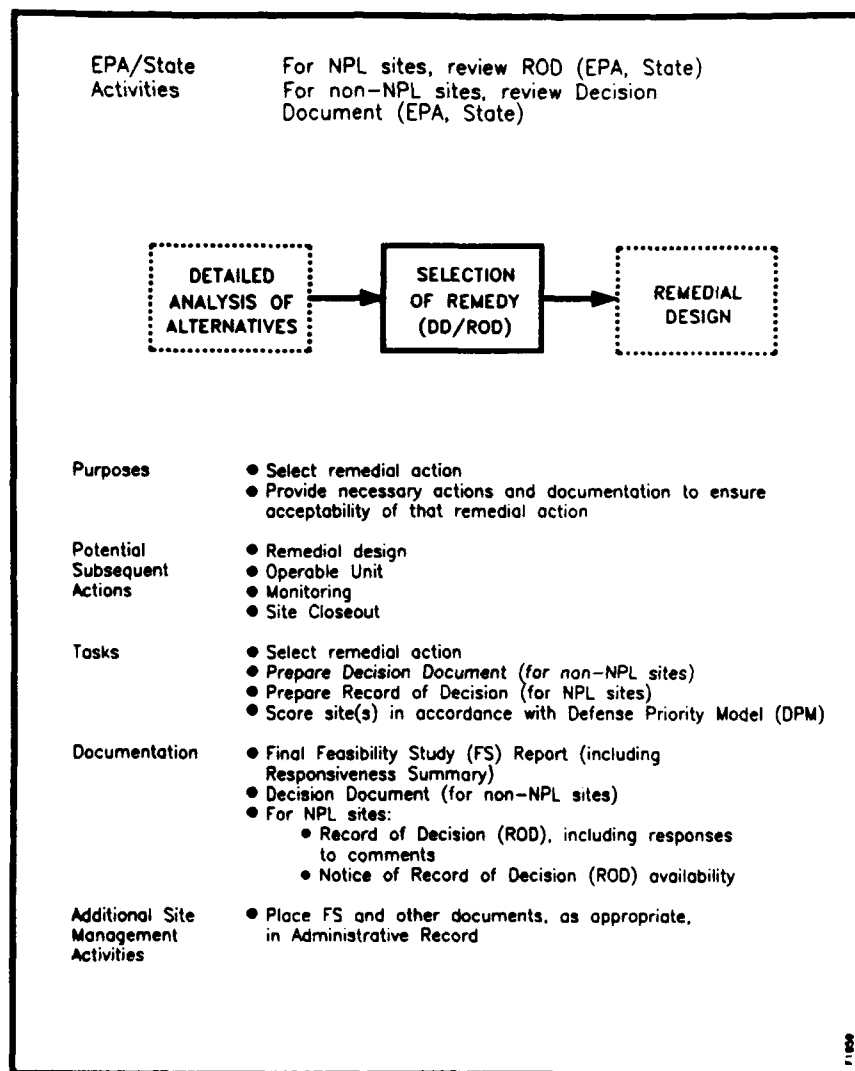


Figure 5-15
Elements of Remedy Selection

Decision Document

Decision documents describe the decision-making process and provide a formal record of the Air Force's decision. You may need technical support documents to synopsize the RI and FS reports, although normally these reports suffice. The DD is usually a short document (5-10 pages) presented in the following format:

Installation:

- Name and location of the installation

Site Identification:

- Name and site description (number, WIMS-ES Site ID)
- Location relating to Base boundary
- Setting (geographical, topographical, geological, etc.)

Background:

- Nature of the site
- Historical factors contributing to identification of the site
- Results of site studies and investigations
- Study findings and recommendations
- Significant concerns associated with the protection of human health and the environment
- Coordination with regulatory agencies and the public

Alternatives Evaluated:

- Analyses of all alternative control measures considered

Project Management

- In all cases, a "no action" alternative must be included
- Permanency of alternatives
- Reasons for not considering or adopting each alternative

Conclusion:

- Summary discussion of the alternative selected and reasons for selection

Signature

Date

*Normally signed by Installation Commander or MAJCOM DCS for Engineering and Services.

Refer to the IRP Management Guidance and the Interim Final Guidance on Preparing Superfund Decision Documents (OSWER Directive 9355.3-02) for additional information on DD format and content.

Record of Decision

The ROD is usually a short document (3-10 pages) that states the remedial alternative selection. It is signed by the MAJCOM/DE or the Installation Commander and all FFA (or IAG) signatories. The ROD consists of the following:

- Documents Reviewed: This section lists the documents reviewed when deciding among the remedial alternatives. The list should include:
 - The RI/FS report;

- Summary of selection of remedial alternatives; and
- Responsiveness Summary (Air Force responses to public and regulatory comments).
- Description of Selected Remedy: This section describes the major components of the remedy and its O&M requirements.
- Declarations: This documents that the decision is consistent with CERCLA, SARA, and the NCP; that it is cost effective; and that it provides adequate protection to public health, welfare, and the environment.

Prepare the draft ROD during the public comment period for the RI/FS report. Public comments are addressed in the Responsiveness Summary of the ROD; the Summary does not undergo further public comment. For more information, consult EPA reports including Record of Decision Checklist for Interim Source Actions and Suggested ROD Language for Various Groundwater Remediation Options (OSWER Directive 9283.1-03, October 1990).

Federal Facilities Agreements (FFAs)

The FFA is a written legal interagency agreement between the Air Force, EPA, and/or State. It is required in conjunction with the selection of remedial actions for all NPL sites. RCO and MAJCOM, technical and legal staffs, are team members in development/negotiation of FFA. The FFA includes:

- A review of alternative remedial actions and selection of an alternative;
- A schedule for completing each remedial action; and
- Arrangements for long-term monitoring and O&M.

The FFA is needed to:

- Establish the regulatory and procedural framework for the site by specifying the offices and authorities involved;
- Structure the state role;
- Establish a mechanism for resolving disputes;
- Help EPA understand and be involved in the Air Force IRP process; and
- Ensure that the ARARs are correctly identified and addressed.

You should develop the FFA with the regulatory agencies as early in the RI/FS stage as possible. Service centers may be able to help you with this. This may help to avoid confusion and disagreements during remedy selection. Refer to the IRP Management Guidance for model provisions and the content of an FFA.

5.5 Activities Following ROD

The major activities following the ROD include Remedial Design (RD) and Remedial Action (RA), which lead to site closeout. Figure 5-16 shows the RD/RA process, including the RPM considerations at each step.

The activities after the ROD are based on the information acquired during the RI/FS. You should have a low degree of uncertainty about the scope of the work to follow. As discussed in Section 5.1, you have the choice of two project execution scenarios: typical and two-step. One service center, if you choose to contract with a service center, should be used throughout the project. This increases the efficiency and accuracy of the site work.

Refer to Section 4 for details on programming and budgeting and Section 6 for details on contracting.

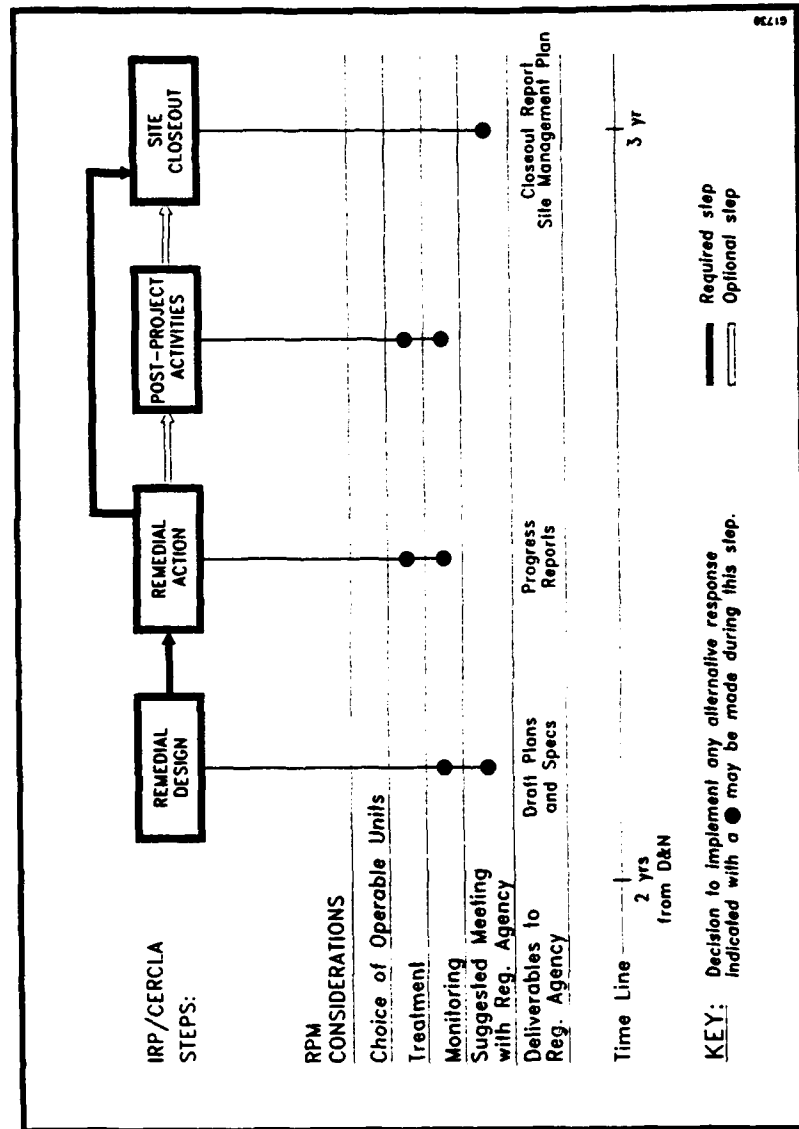


Figure 5-16
Response Options During the RD/RA Stages

Project Management

5.5.1 Remedial Design

There are two scenarios for RD/RA execution. Each involves slight variations in the type of design documents and project oversight.

TYPICAL EXECUTION

In this scenario, the remedial design must specify all the work that the site remediation contractor must do. The design plans and specifications are used to oversee the site work as needed. The documents that are needed include:

- Written specifications or SOW providing information about the site work;
- *Final Remedial Design Plan Sheets (drawings)* showing the areas to be remediated (contamination location and quantity) and detailed construction drawings for treatment units, etc., specified in the FS; and
- Cost estimate.

TWO STEP EXECUTION

In this scenario, the E/C provides a performance specification stating the required cleanup results. The remediation contractor provides this service in his own way according to his own plan with E/C oversight. The documents that are needed include:

- Performance Specification providing the minimum criteria that the site work is to accomplish and sufficient detailed specifications to describe the problem/work;
- Internal Remediation Work Plan produced by the remediation contractor; and
- Cost estimate.

RPM Responsibilities

Your responsibilities are similar to those discussed in Section 5.4. Before the RD, your responsibilities were mainly in the areas of programming, planning, and budgeting. You were also involved in choosing the E/C to conduct the RI/FS, and were focused on getting a cleanup alternative accepted and documented in an ROD or DD. Your focus now shifts from deciding what to do (planning/-investigation) to input in designing the remedy and cleaning up the site (execution). Since the RD has more traditional engineering aspects, the Base engineering and programming sections should become involved to a greater extent (i.e., managing and reviewing designs and budget requests, reviewing contractor solicitations).

Before design activities begin, you are responsible for contacting **Base Planning**, the **Base Environmental Protection Committee**, and the **Technical Review Committee**. All of these entities are shown in Figure 5-17. You are responsible for delegating tasks and involving the appropriate specialists in committees.

Involve Public Affairs Coordinator--Since there is a high level of public interest at this stage, you need to provide your community and interest groups with pertinent information about the progress of the remediation. Involve your Base public affairs coordinator.

Work with Legal Experts as Necessary--You must also keep the local and federal regulatory agencies informed of the progress of the remediation. Work in conjunction with the Base Judge Advocate and your Regional Compliance Office.

Use the Tools Available to You--You must also track the progress of the project and report the results to your commander and MAJCOM. Tools are available to you that can streamline information management (discussed in Section 5.1).

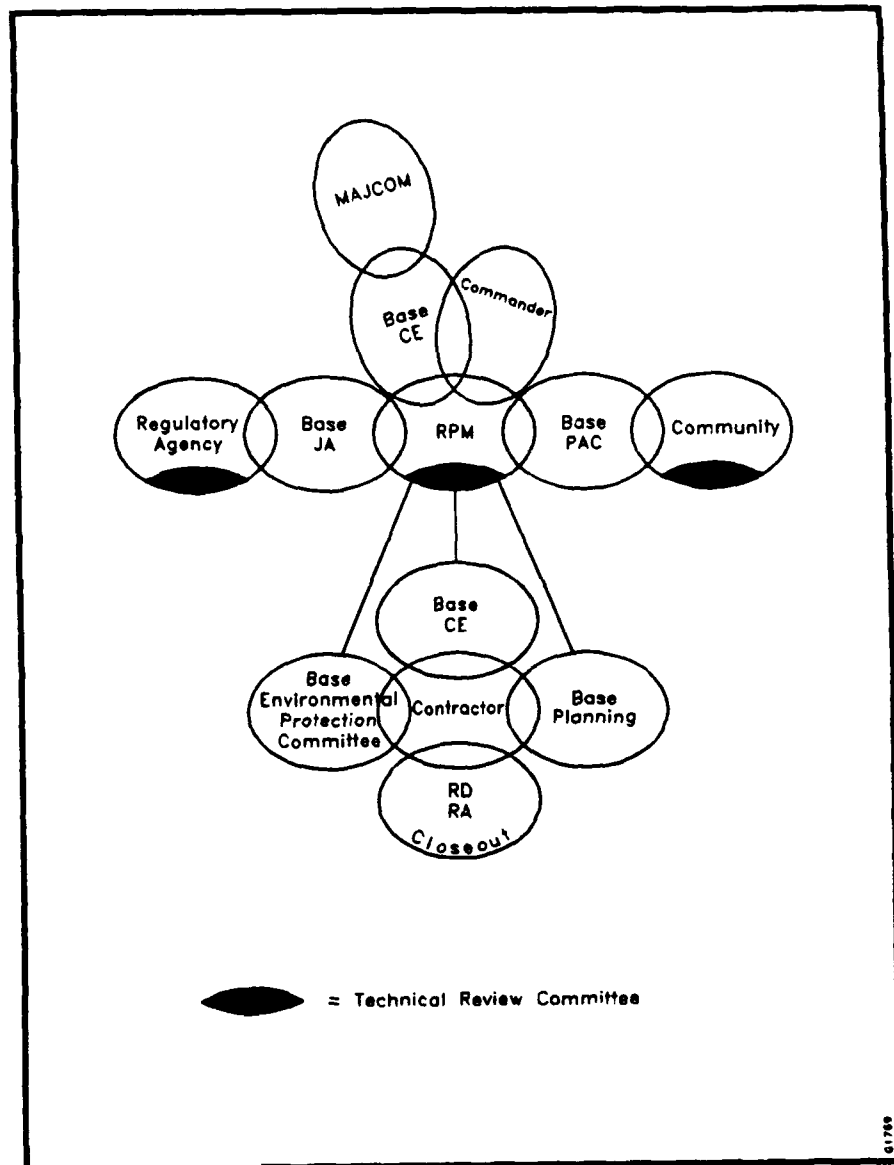


Figure 5-17
Project Affiliations During the RD/RA Stage

Predesign Activities

Statement of Work (SOW)--The statement of work is the initial plan of action for the RD/RA. Specific Air Force requirements at all levels should be outlined, described, and referenced. You need to outline the requirements of the project before beginning to budget or schedule. The goal is successful remedial action based on the FS results. You should also consider site-specific requirements, including health and safety and regulatory requirements. **The schedule and budgets that you prepare are only as good as the SOW.** Items that may be covered by a SOW include:

- Contractor safety responsibility;
- Third-party QA/QC;
- All site work;
- Work period; and
- Deliverables.

Scheduling the Project--It is very important not to underestimate the time required to perform the RD/RA. The initial schedule tends to be the schedule by which performance, compliance, or non-compliance is measured. Some potentially overlooked tasks associated with the RD/RA include:

- Mobilization time;
- Demobilization time;
- No work on bad weather days;
- Proposal review and contract negotiations;
- Engineering design;
- Regulatory review time (establish reasonable review times);
- Contingency;
- Obtaining proper permits;
- Site preparations;

- Interference by on-going site operations; and
- Laboratory turnaround times (establish reasonable times).

Other non-obvious activities that can delay schedules should be anticipated early. It is important to get base, regulatory, and contractor input early and often for the initial schedule and for later updates of the schedule. For example, CERCLA Section 120 (e) 2 requires that remedial action begin no later than 15 months after completion of the investigation and study. Use a software program or other method to schedule the project (see also Section 4).

Setting Milestones--Consider all obvious and non-obvious milestones for the project. Examples of non-obvious milestones are reviews and approvals, funding dates, funding deadlines, public notice and comment periods, bidding time, and contract negotiations. Obvious milestones could include the submittal of deliverables (e.g., Preliminary Design Reports, 35, 95, 100 percent Design Documents, Bid Submittals, Project Startup, Project Closeout)

Planning Concurrent Activities--Get input from relevant parties, but particularly contractors, about activities that can be performed concurrently during the project. You should consider the risks involved, if any, of scheduling activities concurrently. A good example occurs during the design phase of the RD/RA. Contractors typically proceed with design during the review of the level of completion documents. However, approval of a design should be given so that the contractor does not proceed with incorrect design assumptions.

Compatible Concurrent Activities	
Additional Excavation	Lab Analyses of Stockpiled Material
Site Preparation	Equipment Mobilization
Site Work Wrap-up	Material Transport/Disposal

Fast-Track Structuring--Fast-track scheduling applies to projects requiring very abbreviated schedules. Simply stated, it is a way to speed up the process by beginning an activity before completing the previous activity. For example, some RI activities can be started before the SI has been completed. Similarly, some FS activities can begin before completion of the RI. The fast-tracking technique is shown in Figure 5-18.

An extreme form of fast-track structuring is to begin construction on independent portions of the project before the entire design is complete. Typically, you or the service center contract with a design/construction contractor to eliminate the need for bidding the construction. The decision to "fast track" a project should not be made lightly and should not be made without first consulting all of the players involved (i.e., the Air Force, Base CE, service center, regulatory agencies). You may wish to contract your E/C to do critical path management (CPM) to identify fast-track scheduling opportunities. Otherwise, you may wish to investigate software packages that have CPM capabilities (e.g., ON TARGET, Timeline).

Costing and Budgeting the Project--Proceed with budgeting to estimate the remedial design and remedial action costs. In the past, construction cost estimates from the feasibility study could be considered no better than ± 50 percent. Newer systems (e.g., Composer Gold, CORA, M-CACES, RACER) should improve cost estimate accuracy. Initiate funding requests accordingly.

Design costs are only as accurate as the scope of work from which they are estimated. The more uncertain the SOW, the more uncertain the design budget will be. Construction oversight activities are generally estimated as a percentage of construction at this point (typically 10 to 15 %) and can go up or down, depending on the complexity of the design.

Operable Unit Description--Discrete portions of remedial actions may be separated and implemented as operable units. In NCP, the operable unit is defined as a discrete portion of a remedial

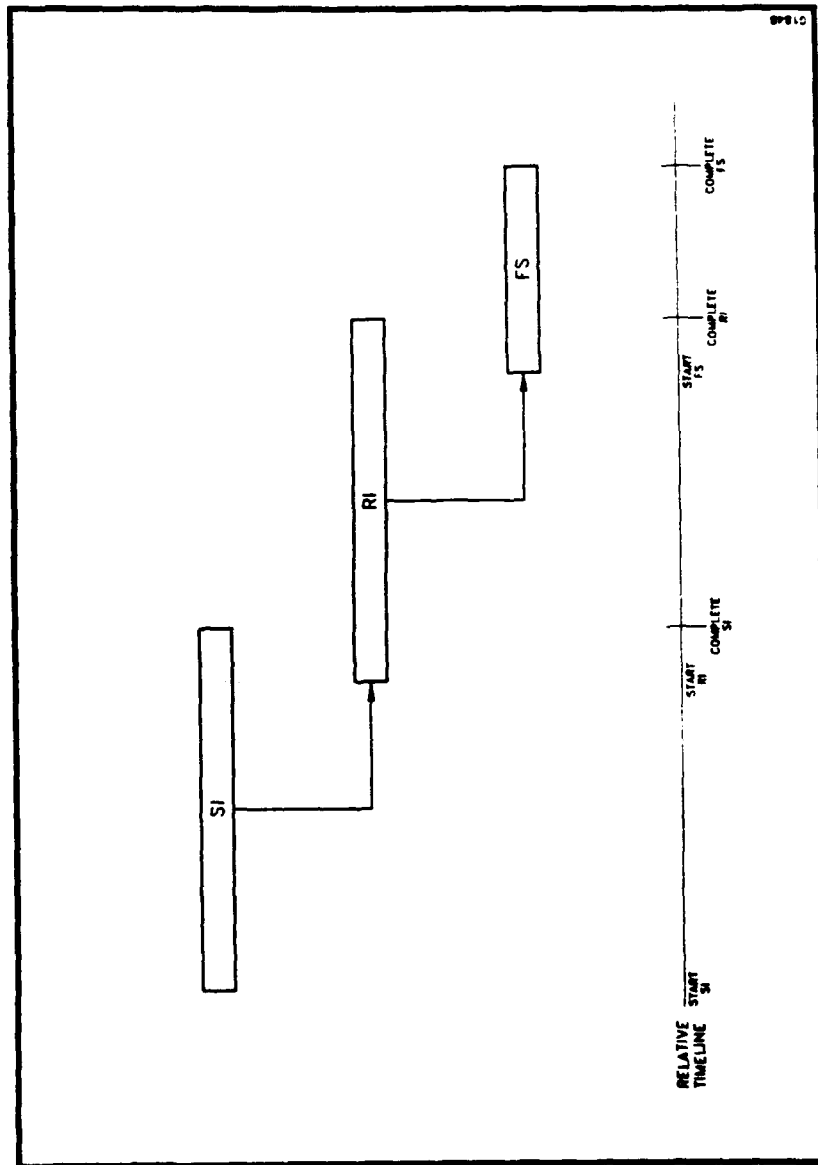


Figure 5-18
Example of Fast-Track Scheduling

response that by itself eliminates or mitigates a release or threat of a release or pathway or exposure and that may require additional action to accomplish its objective.

Consider splitting a large, complex RD/RA into smaller, more manageable units. High priority units can be remediated in this manner before the overall remedial action is completed. The opportunity to do this should be considered some time during the RI process. The RD/RA for an operable unit must integrate with the overall remediation of the site.

Focused Feasibility--If during the FS process it becomes obvious that alternative effective methods are available that may be more cost-effective than the identified alternatives, you may choose to initiate a focused feasibility study for the identified option. The focused feasibility study traditionally does not follow the guidance spelled out in the ROD. Rather, it concentrates on specific evaluation criteria developed by the Air Force, the Base, the E/C, etc.. The result of a focused feasibility study may justify an interim RA (if threats to the public health, welfare, or environment are reduced) or it may change the projected RA. You should carefully consider all effects on the project before initiating a focused FS. Schedules, budgets, funding, etc., may all be affected.

Annual Funding Requirement Deadlines--Remember that funding requests for the next fiscal year must be submitted to MAJCOM by 30 April to allow proper evaluation. MAJCOM must submit their compiled recommendations to Air Staff by 31 May.

The Remedial Design/Remedial Action Work Plan--You must submit an RD/RA Work Plan to the regulatory agencies before RD/RA activities begin. The contractor should prepare the Plan, which contains much of the information described in the previous paragraphs, including: Schedule, Description of SOW, Objectives, Quality Assurance and Health and Safety Procedures, etc.. Each RD/RA Work Plan is site specific (but many of the parts are the same). Quality Assurance Project Plans (QAPPs) and Health and Safety Plans from the RI/FS can be modified and incorporated by reference into the RD/RA Work Plan.

Defense Priority Model (DPM) Score--DPM score is required for all RA projects and should be provided on a 1391 to MAJCOM.

QA/QC--Consider the QA/QC procedures needed during the RD/RA. Generally, the remediation contractor develops these procedures, but they must comply with all applicable Air Force and regulatory requirements. QA/QC procedures must be documented for design and for verification and other remediation sampling. A QAPP is generally developed by the E/C for remediation quality assurance and quality control; the QAPP used during the RI/FS activities can be modified for the verification and materials sampling during remediation, and the E/C should have design QA/QC procedures in place in a corporate quality assurance plan. The QAPP should clearly define data validation and the contents of the data deliverable.

Health and Safety--The Health and Safety Plan used for construction should be a modification of the Health and Safety Plan used during the RI/FS. It is developed by the remediation contractor based on E/C specifications of minimum health and safety requirements. It should comply with all applicable regulations, including:

OHSA

- 29 CFR 1910.120;
- 29 CFR 1910;
- 29 CFR 1926;

Other

- 40 CFR 280;
- 40 CFR 263;
- NIOSH Publication Manual of Analytical Methods, 3rd Ed, Volumes 1 and 2;

- EM 385-1-1, Safety and Health Requirements Manual, Rev. October 1987.

At a minimum, all site workers should have completed the OSHA 40-hour Hazard Training course.

Contracting--Seek assistance and input from the RI/FS contractor and from the Base CE on appropriate remediation contractors to perform the RD/RA work. If the RI/FS contractor can perform the design, it is preferable for him to do so. Using a single E/C contractor for RI/FS and RD phases is possible because RI/FS tasks are generally a subset of those listed as "other Professional Services" in FAR Part 36.102(b-d), and could be justified as part of an engineering services package. If such an arrangement can be made, considerable savings in time, transition learning, and communication can be realized. The RI/FS contractor is the most knowledgeable about site conditions, goals, and objectives, and the specifics of the selected alternative. You should also recognize the value of selecting a qualified local remediation contractor to perform the work (see also Section 6).

RD Process Details

The RD can essentially be broken up into several parts: design, solicitation, award, performance, surveillance, and project close-out. The RD Work Plan should identify, describe, and document how these parts are performed. The Work Plan is the guide book for the RD and should be revised as the design changes.

Discussion--Begin the RD/RA process with the tasks described at the beginning of this section, during which you establish the goals and objectives and the scope of work. The contracting officer (CO) must select a remediation design contractor or contractors. The CO is also responsible for issuing the notice to proceed. You are responsible for providing input to the CO for contractor selection.

The design phase should begin with a kick-off meeting attended by all appropriate parties (e.g., JA, PA, remediation contractor, CO, CE, BEE). Disseminate information vital to the design to all team members, and establish additional information

requirements. When all information requirements have been established, discuss the concept of the design, as well as any design input from the base (particularly planning, CE, and BEE), with the contractor. The contractor will prepare a preliminary design report (PDR), which will be his basis for the design and which should reiterate the concepts discussed during the kickoff meeting. You or the contractor should secure the necessary concurrence (including regulatory approvals) for the PDR, after which the contractor will proceed with the plans and specifications.

Depending on the complexity of the design or the sophistication of the remedial action, the Plans and Specifications can either be detailed design documents or performance specifications. The advantage of performance specifications is that they allow remediation contractors flexibility to use their expertise instead of tying them down to one method or procedure. However, a performance specification places greater liability on the remediation contractor for successfully completing the job. Performance specifications are not for every project; exercise caution when using them. Even performance-type solicitation documents may contain varying amounts of detailed plans and/or specifications. This will probably be the case with complex remedial jobs. Performance specs must be reviewed at least at the 35% and 95% completion levels.

Detailed design documents should be submitted to the RPM for review at 35, 65, and/or 95% levels of completion. The 65% level review is optional for much work, but desirable for complex jobs. You are responsible for securing the necessary regulatory approvals.

[Note: For non-NPL sites, you may elect not to include the regulatory agencies on all review levels. Depending on negotiations with the regulatory agencies, you may elect to only include them during the PDR review and the 95% review.]

The contractor incorporates and answers the comments from each review (i.e., comments on the 35% documents are incorporated into the 65% documents). You may also require the contractor to submit a responsiveness summary describing how and where comments have been addressed.

When the contractor has addressed all comments on the 95% submittal, the technical solicitation documents are essentially complete. The CO (or the service center) is responsible for issuing a notice for the remedial action to proceed.

Detailed design specs do not allow the remediation contractor any flexibility, which places more liability for unsuccessful results on the E/C, the service center, and the Air Force. Consult with CE and/or your service center to determine the level of detail you need for your plans and specifications.

In addition to the plans, technical specifications, and solicitation documents produced during the Remedial Design step, you must maintain the following site activity records and reports during the Remedial Action step:

- Health and safety plan;
- Sampling and analysis plan for post-project activities;
- Contractor documentation of work performed, equipment installed, site worker and visitor compliance with health and safety plan, and compliance with data quality objectives;
- "As Built" drawings; and
- O & M manuals for electro-mechanical equipment.

Additional information is available in Superfund Remedial Design and Remedial Action Guidance (EPA, June 1986).

In the typical project execution scenario (Figure 5-1), you or the service center will be responsible for overseeing the project or separately contracting project oversight.

In the two-step scenario, you or the service center project manager should ensure that the design E/C (or qualified A-E) is overseeing the remedial work. Remedial oversight is generally included in the QA procedures described in the Construction Quality Assurance Plan. The remedial construction oversight contractor is

typically the E/C because of his familiarity with the design. Remedial construction oversight activities include:

- Collecting and analyzing QA/QC samples and analyzing the results;
- Evaluating chemical analysis data and air sampling and soil mechanical test results;
- Checking impermeable membrane liner integrity;
- Reviewing plans (e.g., contractor QC plan); and
- Documenting site work progress (photographs, notes, etc.).

When the project is complete, you need to initiate project closeout procedures. Project closeout procedures include:

- Plan for ongoing maintenance and monitoring activities (if applicable);
- Concurrence by regulatory agency of site closeout documents; and
- Record of closeout to MAJCOM.

ARARs--All ARARs should have been identified during the RI/FS process. One of the purposes of the Construction Quality Assurance Plan is to ensure that the RA achieves the established objectives. Compliance with ARARs is monitored during construction and reported regularly.

Tracking Methods--Work with all contractors to coordinate project schedule and budget tracking methods. Encourage the use of project management software (Section 4). You should require monthly project status reports and weekly project status meetings, if possible. The purpose of these meetings is to resolve small budget, schedule, and other problems before they grow.

Document Review Responsibility--You are responsible for identifying and securing appropriate Air Force, Base, and regulatory review of all RD/RA documents.

Document	Reviewer
Health and Safety Plan	Certified Health Professional, BEE
Work Plan	CE
95% Plans and Specification	CE, TRC, Service Center
Laboratory Data	Contract Laboratory or Service Center
QA/QC Data	E/C, Base Technical Staff, or Service Center

Community Relations--Realize that community relations are extremely important during the design and construction of the RA; problems with community relations can bring the project to a standstill. The public must feel they are involved in the decision process and that they are well informed from the RI phase forward. Community relations requirements, as described in Section 7 of this handbook, are dictated by EPA guidance and applicable state regulations. You should carefully choose a representative from the community to serve on the Technical Review Committee.

Regulatory Review and Involvement

Keep in mind that a good working relationship with the regulatory agencies is also essential to timely and effective completion of the RA. Identify and develop communication paths with the appropriate regulatory RPMs. Be aware that staffing constraints of the regulatory agencies may result in delays. Become familiar with the system and consult your Base JA and RCO about regulatory issues as necessary.

Federal, State, and Local Review Personnel--Identify who has jurisdiction over the project, and then identify the person or persons responsible for making decisions. Open a communication path and develop a working relationship with the regulatory RPMs from the planning stage throughout the process.

Maintaining Good Communications--Try to keep the regulatory agencies informed of the progress, decisions, etc. so that they feel they are part of the decision-making process. It is extremely important to maintain open and honest communications between the Air Force and the regulatory agencies. Get it in writing. If the regulatory RPM is unresponsive, send him or her copies of official documents for the records.

5.5.2 Remedial Action

As shown in Figure 5-19, remedial action is implemented after remedial design is completed and has been approved by the regulatory agency. However, the Commerce Business Daily (CBD) notice can be issued or the contractors can be qualified (if appropriate) in parallel to the final review of the design. The design can even be put out for solicitation before it receives final approval as long as amendments can be issued. This is a little more risky, but it can save a lot of time. The CO is responsible for acquiring a remediation contractor to carry out the cleanup plans. You should provide the CO with input relevant to the contractor selection process. The purpose of the remedial action is to implement an effective remediation technology to reduce contamination levels to those determined in the ARARs documentation. This step also determines the post-project activities (if any) before site closeout.

In the typical project execution scenario, the CO (or the service center) starts by conducting the solicitation of the contract using the detailed design plans and specifications package prepared by the investigation phase E/C.

In the two-step project execution scenario, the E/C provides a performance specification with the necessary amount of detail for the solicitation process. The CO and the E/C acquire a remediation contractor. The remediation contractor bids the job according to the best method he can provide to produce the required project results. You should rely on the design E/C (or qualified A-E) to oversee the remediation contractor and provide quality assurance according to the performance specification.

RPM Responsibilities

Generally, RPM or service center responsibilities include the following:

- Award the contract based on technical ability to perform the remedial action tasks, including worker health and safety requirements, environmental monitoring and QA/QC, site security, documentation,

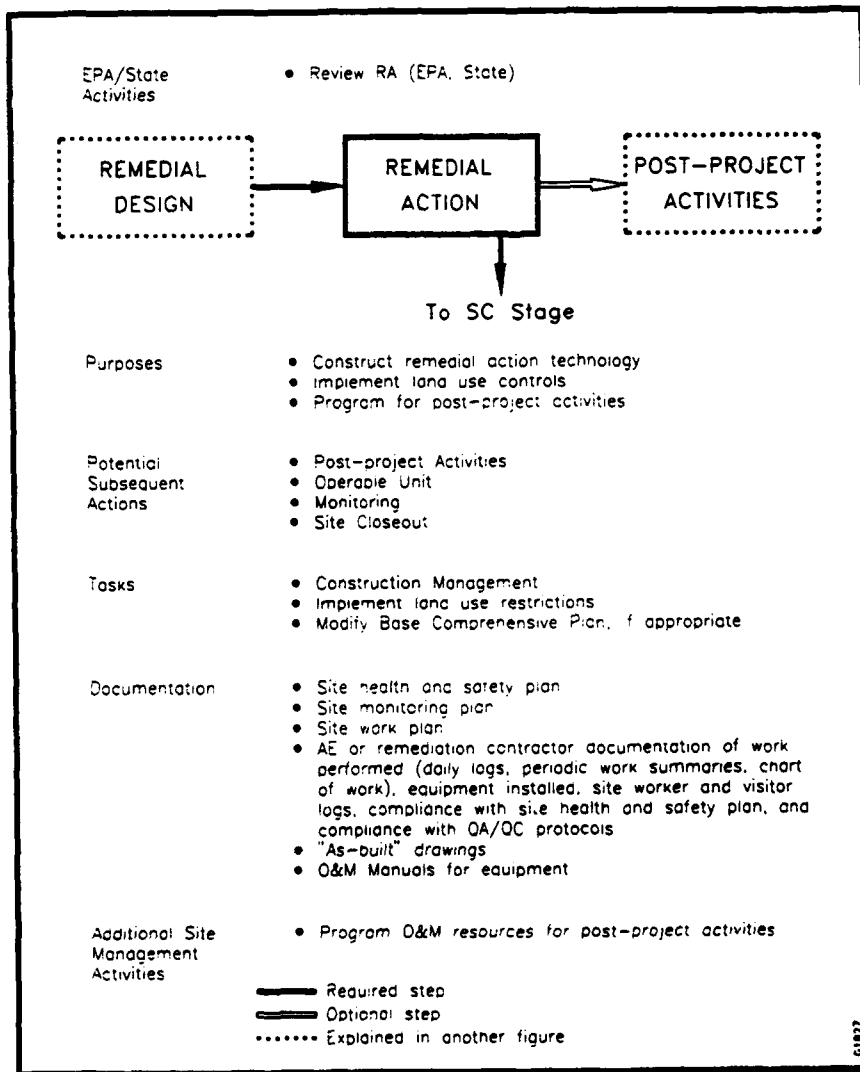


Figure 5-19
Elements of Remedial Action

and all other requirements specified in the solicitation documents. Emphasize remedial actions that will achieve ARARs in one phase, if cost effective. If a previous emergency removal or non-time-critical removal has occurred, also evaluate remediation contractors on the basis of how previous work is used. (See also Section 6.5).

- Provide input to the CO regarding issuing the Notice to Proceed.
- Conduct ongoing progress reviews, inspections, oversight visits, and documentation at intervals according to the complexity of the project. Base evaluation of progress on Work Plan Schedules. (The investigation phase E/C may also have a major project oversight role in the two-step execution scenario.)
- Enlist support (e.g., MAJCOM/Engineering services, JA, or the regulatory agency) to resolve discrepancies and interpret the extent of remedy.
- Conduct final inspection of site work and documentation, including As Built Drawings.
- Accept the final project and concur with the regulatory agency.
- Program O & M resources or DERA funds as applicable for post-project activities.

You are responsible for coordinating the on-Base support staff needed for a successful remedial action phase. Your involvement with these on-Base resources is described below:

- Because your project has become more construction oriented, you should involve the CE in treatment system construction management, site safety plan review/approval, and construction plan modification review.

- The Base planning office must be involved in Base Comprehensive Plan modification, if appropriate.
- The Base BEE should be involved in reviewing the site safety plan and in reviewing and approving the site monitoring plan.
- Major disturbances of certain operational areas must be coordinated with the appropriate base operations staff (e.g., runway closures, traffic detours, and pedestrian exclusion areas).
- Disagreements with the remediation contractor of a regulatory nature should involve the Base JA. The JA may also help enlist state and EPA support.

5.5.3 Scoping for Post-Project Activities and Closeout

Implement this step of the IRP process if you need time to clean up the site after the RA work is complete. Ongoing monitoring also qualifies as a post-project activity (see Figure 5-20).

Work with the design contractor and the remediation contractor to develop a scope of work for post-project activities.

Typical project closeout activities are listed below:

- Ongoing monitoring and analytical reporting;
- Maintaining site landscape (i.e., watering, fertilizing);
- Site surveillance (for Health and Safety restricted areas); and
- Treatment system operation and maintenance.

Limiting Liability--One of the more complex issues facing RPMs is that of limiting the environmental liability of the Air Force.

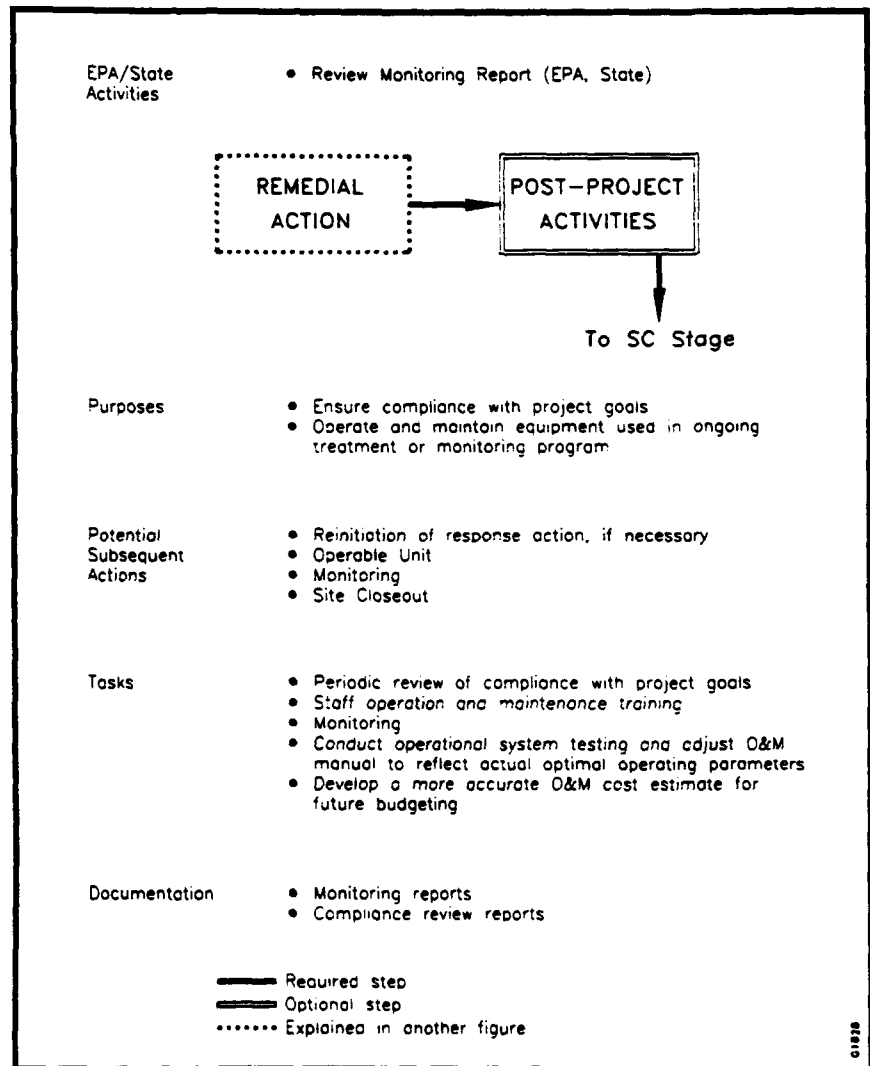


Figure 5-20
Elements of Post-Project Activities

Air Force liability can arise for several reasons:

- Inadequate monitoring may expose the Air Force to legal penalty if requirements of CERCLA and/or RCRA are not met.
- An ANSC or one that has been remediated may later be found to be contaminated above action levels, resulting in continued risk to human health and the environment.
- A contaminated area protected by institutional control may be violated, thus exposing workers or residents. While the Air Force may ultimately be found blameless, it is in their interest to ensure that such situations do not arise.
- An area subject to continuing remediation (e.g., pump and treat) may not be maintained properly, increasing the likelihood of legal action and/or exposure of persons to toxic materials.
- Unforeseen circumstances may occur, (e.g., installation of a well in an ANSC) may create unexpected movement of groundwater, thus causing contamination elsewhere.

There are two basic policy decisions for the Air Force to make with respect to post-remediation monitoring:

- **Monitoring Requirements.** Do the monitoring requirements established by the RODs and the CERCLA five-year review sufficiently mitigate Air Force liability? Because circumstances may differ, this question must be answered for each base.
- **Monitoring Organization.** Who will gather and analyze monitoring data? Will there be a centralized monitoring function within the Air Force, or will this be done by multiple contractors at the various bases? A centralized system should track the data from all

monitoring performed at a base (or bases), assess the base's environmental condition, prepare annual reports, and possibly perform field sampling and analysis tasks. The alternative is to decentralize data collection and analysis and have these tasks performed by the field contractors.

Determine Appropriate System Operation and Maintenance Alternatives--You should require the design contractor to estimate the operation and maintenance (O&M) requirements (costs) for the completed RA. You then coordinate funding for O&M, either through base funding or by securing DERA funds.

Project Management

5.6 Site Closeout - THE ULTIMATE GOAL

Your ultimate goal is site closeout (Figure 5-21). This involves documenting the work and informing all appropriate authorities of the decision to close out IRP actions at the site or at a particular operable unit.

5.6.1 RPM Responsibilities

You are responsible for verifying that certain prerequisites are completed, including:

- That no threat remains to the public health, welfare, or the environment; or
- That any threats to public health, welfare, or the environment are within acceptable limits; or
- That no contaminant standards (ARARs) are exceeded; or
- That no appropriate response actions exist.

The decision for site closeout may occur at any point during the RI, FS, RA, or site maintenance phases. Examples of events that may lead to a closeout decision are listed below.

- If a preliminary assessment shows that no hazardous substances or petroleum products are present at or above ARARs levels;
- If a site inspection or remedial investigation shows that there is no possibility of direct contact, fire or explosion; and soil, sediment, water, or air samples show that no hazardous substances are migrating or are likely to migrate from the site;
- If a baseline risk assessment shows that there is no significant threat to public health or the environment;

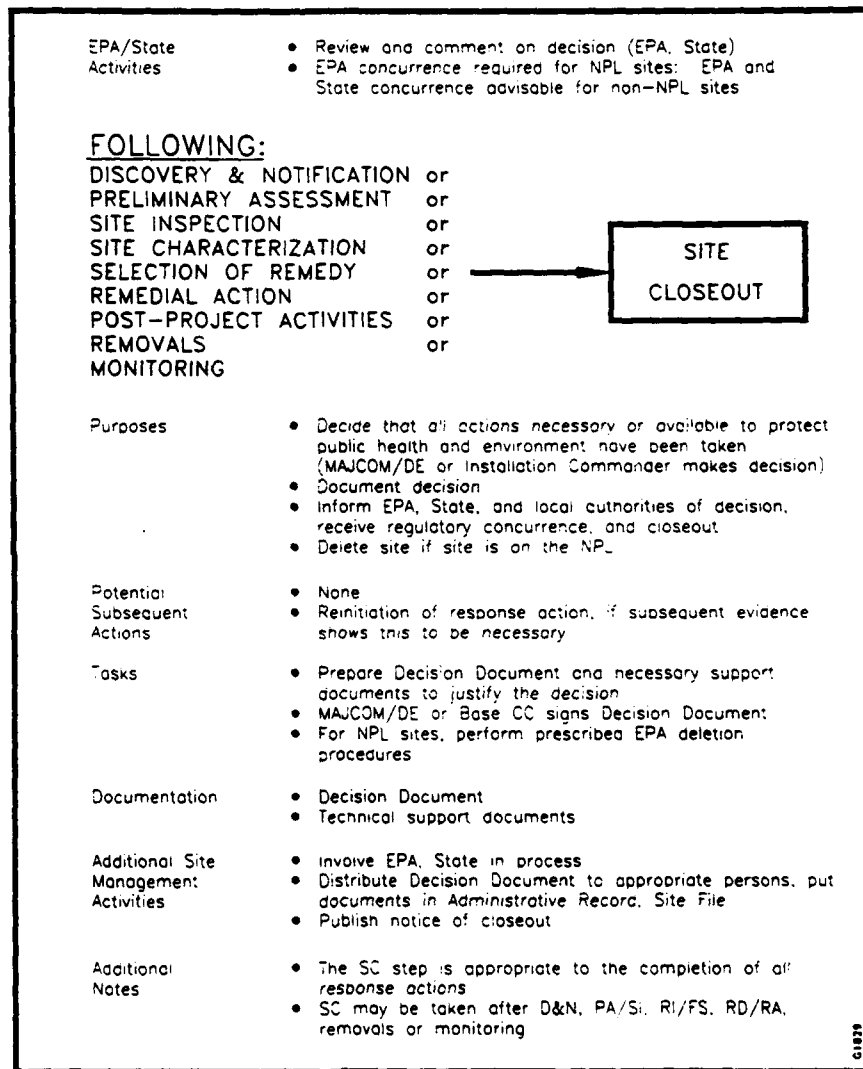


Figure 5-21
Elements of Site Closeout

- If a feasibility study shows that site closeout is the selected alternative; and
- At the end of successful removals, remedial action, or post-project activities.

Your tasks include:

CERCLA PROGRAM

- Preparation and signature of the decision document and compilation of the necessary technical support documents to justify your decision. Prepare the way for the DD by contacting the regulator and discussing the general rationale for closeout. Document these contacts.
- For NPL sites, perform prescribed EPA deletion procedures (40 CFR 300).
- Publish the notice of closeout and forward (if applicable) to members of the Technical Review Committee or involved parties.
- Submit the DD to all appropriate local, state, and federal agencies. Request confirmation within a specified time period. You may prefer to send the DD via registered mail to document its reception by a specific person. Federal regulators are less motivated to respond to non-NPL sites; however, state regulators may be very involved with non-NPL sites and must be included in this process.

AIR FORCE PROGRAM

- Distribute the DD to the appropriate persons (e.g., Commander, Base Environmental Protection Committee, if applicable).
- Document in WIMS-ES and submit signed DD to MAJCOM who will forward to Air Staff.

The information enables the Air Force to track its progress in the IRP area. This information is compiled into scorecards such as the one shown in Table 5-7.

You should ensure that all information collected during the IRP response is maintained and safeguarded in the Administrative Record. If regulatory conditions change, response actions may occur years after the data have been gathered. It is crucial that records be sufficiently detailed and protected to provide a complete and accurate history of the remedial response in support of any potential future legal action. In addition, well-organized information helps the installation or service answer inquiries from Congress or requests from the general public under the Freedom of Information Act. Site records must be maintained for a period of 50 years following site discovery.

The Air Force has designated the AFW-IRPIMS to maintain all technical data associated with contaminated site characterization and cleanup. Include this data input requirement as part of the SOW for the E/C who performs the PA/SI and RI/FS as well as for the RD/RA contractor.

Budgeting

Budgets for the post-closeout activities depend on the specific site remedial action. Post-closeout activities may include verification of cleanup, long- and short-term monitoring, landscaping, air monitoring, access control, treatment system operation, and monitoring or status reports to regulatory agencies. However, the site cannot be closed until the prerequisites listed in Section 5.5.1 are completed. Closeout activities may require a significant effort on the part of the RPM for contacting the regulatory agencies and preparing decision documents. Note that the funding source switches from DERA to Base O&M for long-term maintenance requirements on projects more than 10 years old.

Table 5-7
Typical AF Scorecard

INSTALLATION RESTORATION PROGRAM SITES "FINISHED" SCORECARD											
		<u>Fiscal Year 90</u> Sites Finished		<u>Fiscal Year 91*</u> Sites Finished							
				Planned 31 Mar 91		Actual 31 Mar		Planned 30 Jun		Planned 30 Sep	
Command	Total # of Sites	#	Percent	#	%	#	%	#	%	#	%
USAF	4046	685	17	787	20	758	19	830	20	1330	33
AFLC	398	3	1	3	1	3	1	3	1	63	16
AFRES	94	33	35	45	48	45	48	51	55	60	64
ATC	250	113	45	114	46	114	46	117	47	152	61
SPACECOM	182	73	40	73	40	73	40	79	43	84	46
AFA	12	6	50	6	50	6	50	6	50	9	75
AU	21	0	0	2	10	2	10	4	19	8	38
TAC	635	142	22	170	27	143	23	183	29	312	49
AFSC	371	31	8	70	19	68	18	74	20	91	25
PACAF	522	93	18	101	19	101	19	104	20	146	28
AFDW	4	0	0	0	0	0	0	0	0	0	0
SAC	528	55	10	67	13	67	13	73	14	117	22
MAC	353	34	10	34	10	34	10	34	10	71	20
NGB	676	102	15	102	15	102	15	102	15	217	32

* Number of sites and percents for each period are cumulative.

Documentation

Reporting consists of a Closeout Report under CERCLA. Note that the closeout document is based on the support information in the site investigation. At this stage, you must reanalyze the document quality (QA/QC, complete information) and decide whether a solid rationale for closeout exists. Discussions with support personnel and regulators may help identify potential weaknesses in the documentation that must be strengthened before submittal.

6.0 CONTRACTS

You may have a service center handle contracting if you desire. Some bases have the staff to conduct cleanup projects without the help of a service center and can manage such contracts themselves.

If your Base has the resources needed to find and manage an appropriate remediation or environmental contractor (i.e., to ensure that the contractor produces quality work in line with the terms of the contract), then controlling your own contracts may be the route to take. **Locally controlled contracts are more responsive and efficient and often more economical.** Direct communication with your remediation contractor or service center keeps you in close touch with the progress and status of the IRP work.

On the other hand, if your Base does not have the staff or resources to properly manage cleanup contracts, it is better to give this job to a service center, which does have the resources. Managing such contracts is a complex job, requiring oversight of the contract conditions, the work actually performed, and contractor products such as reports produced, models and methods used, and cost estimates.

This chapter reviews the complex topics related to contracting and contractor management and focuses on some critical aspects of successful program management. A useful source of information on contracting is the Air Force's Environmental Contracting Strategies Guide, January 1992.

6.1 RPM and Service Center Responsibilities

RPM or service center responsibilities for managing IRP sites are discussed in Section 2.1. To fulfill these responsibilities, the RPM typically needs to:

- Procure a technical support contractor in a way that is consistent with all existing acquisition regulations and guidelines (e.g., FAR);

- Provide technical oversight and guidance to the contractor to ensure that work products fulfill the highest standards of professional quality; and
- Monitor the contractor's compliance with all terms and conditions of the contract to ensure that government resources are reported and expended appropriately.

As mentioned earlier, you may procure a contractor at the base level or with the help of a service center. Service centers include: AFCEE, USACE, HAZWRAP, etc. (see other technical agency resources in Section 2). If you decide to use a service center, your project point of contact at the service center is responsible for producing and administering most of the contract. Specific contracting officer representative (COR) responsibilities are described in the DoD 1990 Defense Environmental Restoration Manual.

If you don't use a service center, obtain contract assistance from a contracting specialist (officer) within Base civil engineering.

6.2 Contract Initiation

The contracting officer is responsible for providing a comprehensive Statement of Work (SOW) to prospective contractors for bid or proposal preparation and work. The first thing you must do is determine the purpose of the contract. During the investigation phase, for example, you would use an engineering/consulting or services contract. For the actual remediation work, you would use a remediation service or construction contract. Remediation workers on government contracts who do actual construction work are subject to the Davis-Bacon Act, which regulates wages and benefits. Workers on services contracts are subject to the Services Contract Act, which also determines wages and benefits.

You may decide you need architect/engineer (A/E) services. A generic Statement of Work format for an A/E contract is shown below.

**1.0 STATEMENT OF SERVICES
GENERAL INFORMATION**

- 1.1 BACKGROUND**--Briefly discuss the regulatory and AF requirements that drive the project and WHY the project exists.
- 1.2 LOCATION**--Describe the project location. Indicate the site coordinates (Lat/Long) and the USGS Quadrangle Quarter Section location. Also show the site's proximity to major landmarks, water bodies, water shed basins, population centers, and roads. Finally, state the elevation above sea level.
- 1.3 HISTORY**--Provide a brief base history. Stick to major changes and applicable land uses for the sites in the scope. Bring the reader up to the present.
- 1.4 CURRENT STATUS**--State if the site is currently under regulatory constraints, such as the NPL list or state administrative orders and include all compliance dates. Discuss the current investigation and cleanup status.
- 1.5 PREVIOUS INVESTIGATIONS**--Summarize all previous investigations and give complete references to all the reports generated up to this point.

2.0 OBJECTIVE

State the objectives of this Statement of Work (i.e., the A/E will provide the personnel, facilities, and materials required to analyze existing data, conduct site inspections, plan & conduct RIs, etc. and all other general technical support needed until the remediation process for the sites addressed in this project is completed).

3.0 SITE DESCRIPTION

Provide a detailed site description or include as an attachment to this document.

4.0 DETAILED DESCRIPTION OF TASKS

(e.g., Site Characterization)

- Data Evaluation
- Tasks (1,2,3...) should include but not be limited to all tasks, deliverables, meetings, and report formats needed to complete the work.

5.0 SPECIAL CONSIDERATIONS

Discuss submittals, the disclosure of information, and the confidentiality of written documents. Also address meeting minutes, correspondence, monthly progress reports, and submittals. The submittals section should discuss and describe the requirements for the following:

- Internal Draft
- Draft Memos
- Final Report
- Tech Report
- Monthly Reports
- Point of Contact or Reviewer(s).
- Cost Reporting

Provide example of a cost breakdown sheet and if possible, include labor rates for professional services and unit equipment costs.

6.3 Contracting Strategies

Some contracting strategies allow you or the service center to place a contract well in advance of the actual need for the service or product, thereby expediting the contracting process when you do know the specific requirements.

Base the selection of contract delivery arrangements on what knowledge you have of: the quantity of supplies and services needed; the required delivery time; and the level of performance.

Definite Delivery: When you know the quantity, delivery time, and performance level of a specific project.

Indefinite Delivery: When you don't know the delivery time or performance level. There are three types of Indefinite Delivery contracts:

1. Definite Quantity
2. Requirements
3. Indefinite Quantity

A **Definite Quantity** contract includes the specific quantity of goods and services that will be needed for the project. Use this contract when you definitely know the quantity of goods or services needed. A **Requirements** contract is based on your **best estimate** of the quantity of goods and services that will be ordered; the contractor is paid for the actual quantity ordered. In an **Indefinite Quantity (IDIQ)** contract, also referred to as an **open-ended contract**, the quantity of services needed and the delivery date are indefinite. The contract establishes a minimum and a maximum quantity that may be ordered.

Basic ordering agreement or task ordering agreement (BOA, TOA): Such an agreement often specifies a dollar amount and ordering period beyond which contracts and orders cannot be issued. Use these contracts when you have only a very general understanding of the supplies or services you need and when the work will require several tasks or stages to perform. The type of contract each time (i.e., Fixed-Price, Time-and-Materials) is established in the task and delivery order.

Orders to do the work are usually issued after the government and the contractor have negotiated the contractor's task proposal outlining the quantities, cost estimate, and schedule for delivery of the product or service.

6.4 **Contract Types**

Contract types fall into two major categories--**fixed price** and **cost-reimbursement**--and are distinguished from one another by

the amount of built-in contractor incentive and contract flexibility, and by the project unknowns.

As the RPM, try to build as much contractor incentive as possible into the contract (i.e., lean towards fixed-price contracts). Remember, however, that fixed-price contracts do not allow flexibility in the level of service provided by the contractor. You must know what the project will require to provide this information to the contractor. The government often prefers fixed-price contracts because:

- They motivate the contractor to operate efficiently and effectively;
- They require less contract administration and oversight;
- They are quicker and easier to award; and
- They do not require higher headquarters approval.

However, because you will be faced with varying degrees of uncertainty about the project requirements, you will probably have to instill some flexibility in the contract. If there is uncertainty in your proposed project requirements, lean toward cost reimbursement type or time and materials type of contracts with proven contractors. Cost reimbursement contracts work well in situations where it is impossible to define a statement of work or prepare specifications sufficiently specific for a fixed-price contract. Figure 6-1 shows the relationships among the contract types, the uncertainty, and contract flexibility.

General rule of thumb:

Try to minimize contract risk as much as possible, given the uncertainty you have about the scope.

The major contract types typically used for Air Force IRP work are as follows (the FAR references are given if you need to see more detailed explanations):

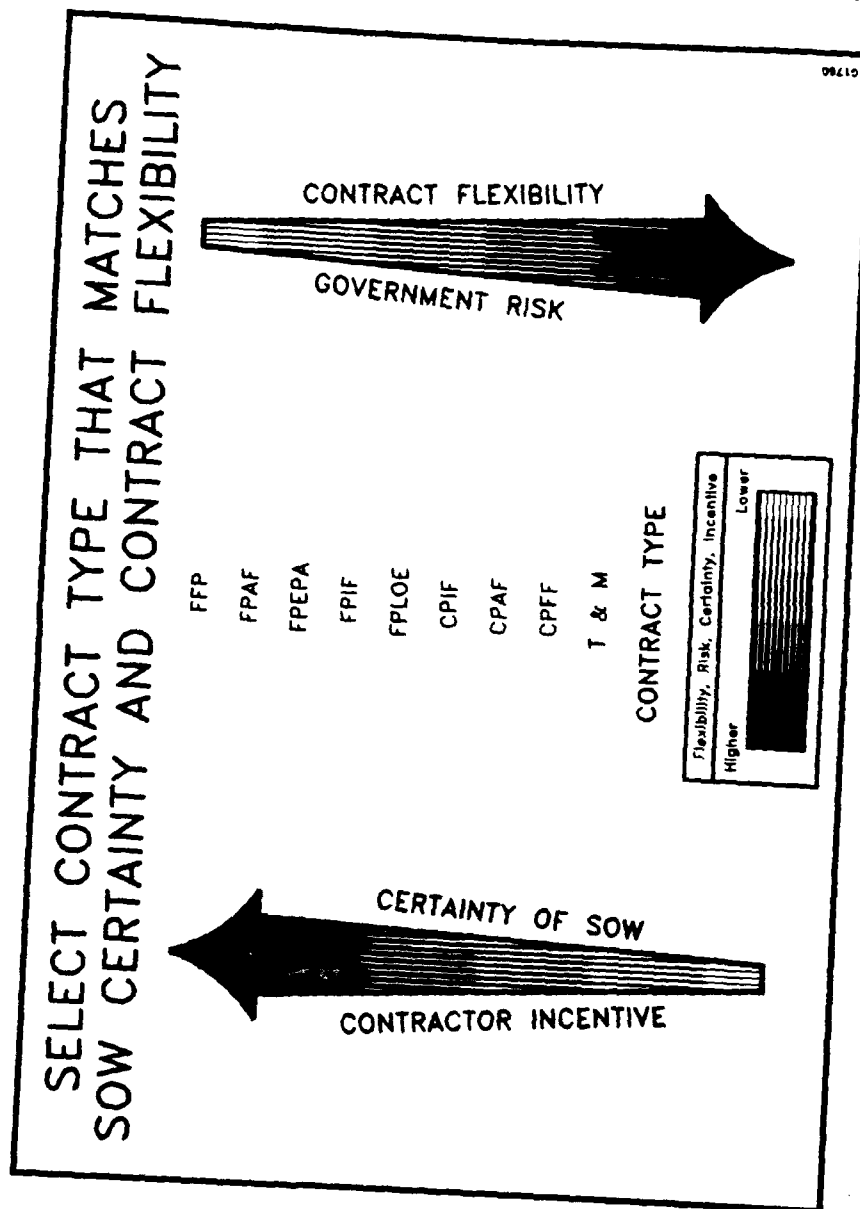


Figure 6-1
RPM Contract Selection Decision

- **Firm-Fixed Price (FFP)**, FAR 16.202--This contract establishes up front a fixed price or fixed unit price for the delivery of supplies or services from the contractor; the price is not subject to adjustment.
- **Fixed-Price-Award-Fee (FPAF)**, FAR 16.305--This is a firm-fixed-price contract with an additional pool of money initially set aside for the contractor to earn during the contract performance period, provided performance is evaluated as better than satisfactory at the end of specific evaluation periods. (See Base-Level Award Fee Guide, AFLMC Project No. LC850705.)
- **Fixed-Price with Economic Price Adjustment (FPEPA)**, FAR 16.203--This is a fixed-price contract that takes into account the possibility of significant changes in the prices of services or products during the life of the project; prices may be tied to published price indices.
- ***Fixed Price with Incentive Firm (FPIF)**, FAR 16.403--A fixed-price contract that provides an incentive of more profit if the contractor can: 1) reduce the delivery time, 2) reduce costs, or 3) improve the product or service.
- **Fixed-Price Level of Effort (FPLOE)**, FAR 16.207--This is a contract that specifies a level of effort, usually as hours over a certain period of time, to be provided by the contractor for a fixed price; useful for work done over a long period.
- ***Cost Plus Incentive Fee (CPIF)**, FAR 16.304--A cost reimbursement contract that allows for a negotiated target cost, target fee, and minimum and maximum fees.
- ***Cost Plus Award Fee (CPAF)**, FAR 16.305--A cost reimbursement contract that provides a ceiling price

based on the estimate to perform the work and a base or minimum fee and a reward or award fee.

- ***Cost Plus Fixed Fee (CPFF)**, FAR 16.306--A cost reimbursement contract consisting of an estimated cost and a fixed amount of fee for the contractor.
- **Time and Materials (T&M)**, FAR 16.601--A cost reimbursement contract that provides for the reimbursement of actual labor hours at a fixed unit price and materials costs.
- **Labor-Hours (LH)**, FAR 16.602--A cost reimbursement contract that provides for the reimbursement of all labor hours expended. Fixed hourly rates are established that include factors for overhead and profit.

***Requires Air Staff or higher approval.**

Specific information on these contracts appears in the Project Manager's Guide For Design and Construction (USAF, June 1989) the Air Force Institute of Technology School of Civil Engineering & Services IRP Course Documentation, and the Air Force Environmental Contracting Strategies Guide, January 1992.

Again, the degree of uncertainty inherent in the work dictates the contract type you choose. For example, if the project is in the planning & investigation phase:

- Uncertainty is high.
- Liability is low.
- Regulations, technology, and procedures dictate results and results are relatively unknown.
- Contamination has not been characterized, remedial alternatives have not been identified, and project processes are not controlled.

- Because conditions will change as the project investigation proceeds, **your contract needs to be flexible** (e.g., a cost reimbursement type).

If the project is in the cleanup (execution) phase:

- Uncertainty is low.
- Liability is high.
- Desired result is known.
- Results dictate process.
- Results must be controlled.
- **You need a less flexible type of contract** such as fixed-price because the conditions will not normally change during the cleanup phase. However, you should allocate contingency funds to accommodate minor changes in the cleanup phase.

6.5 Contractor Selection

You may have an important role in evaluating and selecting a service contractor to do the work. Your input to the base or service center contracting officer should be based on the following criteria:

- Bid or proposal submitted by bid opening or proposal closing date.
 - If bids or proposals are not submitted on time, the contracting officer must reject them.
- Responsiveness to the solicitation requirements (including format if applicable).
- Previous experience in directly related environmental work with the AF (i.e., similar project experience).

- Previous actual performance on similar projects at other locations or at this site.
- Minimal exceptions to and clarifications of items in the Bid Request.
- Diversity of services offered by the contractor. Consider firms that can carry out several tasks; try to minimize subcontracting.
- Personnel expertise or applicable qualifications of the team that will be working on your job.
 - Evaluate this experience against the criteria established in the solicitation.
- Contractor's financial stability and credit rating (AAA, AA, A, B, or C).
- Cost efficiency, when negotiating, cost may rank lowest as an evaluation factor.

Note that the solicitation requirements may need to be clarified. If such clarification is needed before or during the solicitation process, the solicitation must be amended if any strategic project change could affect the offer.

Table 6-1 compares the advantages and disadvantages of using sealed and two-step bidding, and competitive and non-competitive negotiation, and selection of an E/C contractor according to the requirements of the Brooks Act.

6.6 Contractor Management

The RPM or his or her contracting officer has two essential responsibilities when overseeing contractor performance. The first is procedural, the other is technical. The first concerns the budgets, due dates, overall schedule, and the adequacy of funds. The second concerns the technical quality of the work, the integrity of the data, the extensiveness of the analyses, and the clarity of the conclusions. Each is discussed below.

Table 6-1
Comparison of Methods of Contracting

Types	Criteria	Advantages	Disadvantages
Sealed Bidding	(1) Time permits the solicitation, submission, and evaluation of sealed bids. (2) Award will be made on the basis of price and other price-related factors. (3) It is not necessary to conduct discussions with the responding offerors about their bids. (4) There is a reasonable expectation of receiving more than one sealed bid.	After bids are publicly opened, an award can be made reasonably promptly. Secures the most advantageous contract for the government by maximizing free and open competition, preventing favoritism, collusion or fraud.	Does not allow for discussion or negotiation with all offerors.

Table 6-1. (Continued)

Types	Criteria	Advantages	Disadvantages
Two-Step Sealed Bidding	<p>Unless other factors require the use of sealed bidding, two-step sealed bidding may be used in preference to negotiation, when all of the following conditions are present:</p> <ol style="list-style-type: none"> (1) Available specifications or purchase descriptions are not definite or complete or may be too restrictive without technical evaluation, and any necessary discussion of the technical aspects of the requirement to ensure mutual understanding between each source and the government; (2) Definite criteria exist for evaluating technical proposals; (3) More than one technically qualified source is expected to be available; (4) Sufficient time will be available for using the two-step method; and (5) A firm-fixed price contract or a fixed-price contract with economic price adjustment will be used. 	<p>Encourages competition for government contracts because alternative approaches in the design specifications are allowed; in step two, the general aims and benefits of sealed bidding are achieved; step one allows the government to take advantage of industry's experience without the costly use of research and development contracts.</p>	<p>Time consuming and costly for the Government and bidders; flexibility of the process and the latitude permitted opens up chance of bid protests.</p>

Table 6-1. (Continued)

Type	Criteria	Advantages	Disadvantages
Competitive Negotiation	May be used if sealed bids are not appropriate. File must be documented as to which of the four conditions above in Sealed Bidding cannot be met.	Allows an award to be made on the basis of non-price-related factors.	More time consuming than using sealed bidding procedures; longer lead time required before an award can be made.
Non-Competitive Negotiation	<p>10 U.S.C. 2304(c) (DoD, Coast Guard, and NASA) and 41 U.S.C. 253(c) authorize, under certain conditions, contracting without providing for full and open competition. Circumstances which permit other than full and open competition are:</p> <ul style="list-style-type: none"> (1) Only one responsible source and no other supplies or services will satisfy agency requirements; (2) Unusual and compelling urgency; (3) Industrial mobilization; or engineering, developmental, or research capability; (4) International agreement; (5) Authorized or required by statute; (6) National security; or (7) Public interest. 	Contractor office has virtually full discretion in the procedures that will be used; procurement process can usually be compressed, allowing for a shorter waiting period before an award is made.	Generally results in higher costs to the government since competition is not obtained.

Table 6-1. (Continued)

Type	Criteria	Advantages	Disadvantages
E/C Selection (Brooks Act)	Public Announcement of all requirements for E/C services; negotiation of contracts on basis of technical competence, qualifications, reasonable price, ability to complete work on time, etc. The volume of work previously awarded to the firm by DoD will also be considered, affecting equitable distribution to qualified E/C firms.	Selection process identifies the best qualified firm for the specific job.	If a contracting officer cannot negotiate a fair and reasonable price, the negotiations are broken off and the officer negotiates with the next ranked firm.

6.6.1 Managing Project Activities

Every work plan reviewed and approved by the RPM contains a schedule and a budget. The RPM therefore monitors project activities by comparing actual events with the plan. You should call for a list of accomplishments and expenditure data task-by-task in the monthly project reports submitted by the contractor. If separate tasks do not distinguish among analytical costs, field work, document preparation, and project management activities, you should ask the contractor to begin reporting activities such as these within the individual tasks so that you can understand discrepancies between the planned and actual costs and accomplishments. The RPM also reviews the schedule and notes any significant differences in the budget or time estimates.

The RPM or his or her contracting officer should also ask the contractor's Project Manager to provide information on the following:

- Progress of each task;
- Projected expenditure levels;
- Schedule status of each task;
- Budgetary status of each task; and
- Overall project schedule and budget.

As RPM, you should use this information to plan for any contract changes that may be needed. If delays in the schedule cannot be avoided, you may recommend extending a specific due date or the task's period of performance. If funding levels are inadequate, you may recommend raising the ceiling or exercising an option early in the contract. If, however, delays and expenditures are solely the responsibility of the contractor, you may recommend actions or compensations appropriate to the situation.

6.6.2 Managing Contractor Products

You are in the best position to understand the technical problems the contractor faces, the requirements under which the work is being done, and the policies and guidelines that drive the work. You

must therefore be as authoritative as possible about the following topics, which are crucial to quality site work:

- Techniques for sampling and analyzing contaminated media;
- Environmental fate and transport models;
- Risk and exposure assessment methods;
- Environmental impact assessment;
- Evaluation of remedial technologies;
- Cost estimation and value engineering; and
- Remedial design and construction considerations.

In addition to these technical areas, you should be familiar with all pertinent environmental regulations and policies that affect how technical disciplines are applied to a particular site. You can then make an adequate quality assurance review of project activities and reports.

6.7 Sources of Contracting Guidance

Good sources of contracting information include:

- Air Force Environmental Contracting Strategies Guide, January 1992;
- Project Manager's Guide for Design and Construction, USAF, June 1989;
- Defense Environmental Restoration Program Manual, Deputy Assistant Secretary of Defense, March 1990; and
- Contracting Officer's Guide to Environmental Restoration, AFIT, September 1991.

7.0 COMMUNITY RELATIONS

If a base is on the NPL, community relations activities must be performed pursuant to CERCLA Sections 113 and 117. For non-NPL bases, similar procedures are recommended to meet the objectives of community relations activities. CERCLA requires that the public be involved at specific stages of response actions. While the most visible requirements are a public comment period and a public meeting on proposed actions pursuant to the RI/FS process, other steps to ensure public awareness of impending decisions are required. If the base or site is not listed on the NPL, RCRA or other applicable regulations may govern response actions. In this case, permit actions or orders issued by the regulator(s) will require community involvement. While each law has minimum requirements for community relations, the common goal is to inform and involve the community at every major decision point.

As RPM, you are responsible for performing or coordinating with your Base Public Affairs (PA) and technical staffs the following tasks for all IRP sites, NPL and non-NPL. Also note that service centers or E/C firms can offer community relations support, for example, by preparing a Community Relations Plan (CRP).

7.1 RPM Community Relations Checklist

- ☐ 1. Establish a Technical Review Committee (TRC) to facilitate the review of and comment on response actions and any proposed actions (NPL requirement).
- ☐ 2. Include a public representative of the community on the Technical Review Committee.
- ☐ 3. Act as spokesperson for Community Relations and Public Affairs aspects of the IRP.
- ☐ 4. Review and comment on IRP documents.
- ☐ 5. Coordinate news releases, responses to media queries, and briefings.

Community Relations

- ___ 6. Notify civic leaders and spokespersons for local interest groups (e.g., the Mayor, Lions Club, City Manager).
- ___ 7. Prepare community impact briefing (E/C can help; this is not an EPA requirement).
- ___ 8. Develop Questions and Answers and Fact Sheets for general distribution.
- ___ 9. Inform all Base personnel of IRP progress through the Base newspaper.
- ___ 10. Maintain a complete Administrative Record of all community relations actions in support of the IRP.
- ___ 11. Maintain a list of qualified speakers.
- ___ 12. Prepare written, site-specific community relations plans for remedial actions.
- ___ 13. Provide a 30-day minimum public comment period to allow comment on the FS.
- ___ 14. Help prepare the Responsiveness Summary (summary of public comments and of the Base's response) to make it suitable for inclusion in the final ROD or decision package.
- ___ 15. Coordinate and publicize public meetings.
- ___ 16. Conduct community interviews.
- ___ 17. Establish an Information Repository at the local library or other easily accessible location.
- ___ 18. Announce the availability of the Administrative Record and final reports as they are added to the Information Repository.

- ____ 19. Publish in a major local newspaper notice of the availability of the Proposed Plan, the public comment period, public meetings, the EE/CA, and the ROD.
- ____ 20. Repeat the public comment period if significant changes are made to the preferred alternative response action.
- ____ 21. Maintain and update the mailing list throughout the life of IRP activities.
- ____ 22. With the E/C's help, write and distribute a fact sheet about the final engineering design of the RA.
- ____ 23. NPL ONLY: Notify the public of the availability of a Technical Assistance Grant.
- ____ 24. Coordinate the message, report, and draft letters of transmittal for release of the IRP findings.

7.2 Process Details

Table 7-1 summarizes activities that must be performed during different steps of the IRP process. As mentioned earlier, you may be able to coordinate some of these tasks with your Base PA and technical staffs or with the investigation phase contractor or service center.

7.2.1 Timing of Activities

Under DOD and EPA guidance, a community relations plan is required for all remedial actions and for any removal actions when time permits. The CRP must be prepared as part of the RI/FS Work Plan. For remedial actions, public participation activities usually begin during the PA/SI steps.

For those removal actions that have a planning period of less than six months before site activity begins, you must publish a notice of the availability of the Administrative Record in a major local newspaper within 60 days of the beginning of on-site activities. Provide

Table 7-1

IRP PUBLIC AFFAIRS ACTIONS

Public Affairs Actions	PA	SI	RI	FS	RD	RA and O&M
Administrative Record	S	S	R	R	R	R
Establish Technical Review Committee			R	R	R	R
Contact State and Local Officials	R	R				
Contact Citizens		R				
Community Interviews			R			
Information Repository			R	R	R	R
Public Meeting and Workshops				R	S	S
News Release			R	R	R	R
Newsletter			S	S	S	S
Fact Sheet			R	R	R	R
Revise Community Relations Plan			R	R	R	
Public Comment Period				30 days		
Responsiveness Summary (in ROD)				R		

R Required (by federal regulations)

S Suggested

a public comment period of 30 days, and prepare a written response to the comments. If a six-month planning period is feasible before the removal action begins, you must make the Engineering Evaluation/Cost Analysis (EE/CA) available and give notice of its availability in a newspaper of major local circulation. Allow at least a 30-day comment period and respond in writing to all comments.

If participants expect the on-site removal action to extend beyond 120 days, community interviews, a community relations plan, the Information Repository, and the Administrative Record, which are all associated with remedial actions, will be needed.

7.2.2 Planning Community Relations Efforts

Planning is crucial to the success of your community relations efforts. The more information that you have about the specific needs and demands of your community, the less likely you are to find yourself in an embarrassing situation or crisis. Don't forget that such planning needs to take into account both state and federal regulations. Also, note that failure to keep complete and up-to-date records of the IRP decision process could result in the Base being later unable to defend that process legally and before the public.

Planning includes scheduling required and optional public affairs activities, as well as selecting technical and Base spokespersons who can effectively communicate with the community about technical and legal issues.

Plan on how you will use your E/C firm to perform some of the community relations activities. Such support requirements need to be listed in the contractor's SOW.

Before addressing the public, spokespersons should review information about interacting with the media, such as that presented in the AFIT IRP course.

7.2.3 Public Notice Requirements

Section 117 of CERCLA ensures that the public has the opportunity to review and comment on feasibility studies (FS) and on recommended remedial alternatives (Proposed Plans). You or your designee should publish a notice of the availability of these documents in a major local newspaper, allowing at least 30 calendar days for comments to be submitted. You should hold a public meeting and prepare a summary (Responsiveness Summary) addressing each significant comment.

7.2.4 Community Participation

During the remediation and removal processes, you (or the spokesperson you designate) are responsible for:

- Informing the community of any action taken;
- Responding to inquiries; and
- Providing information about any releases of hazardous substances.

Public meetings, interviews, and the Information Repository all support community participation. Make sure you encourage community access to an up-to-date Administrative Record of all decisions concerning the IRP process.

Make sure that a public representative is included on the Technical Review Committee (TRC), which will also include Base and EPA officials, and state and local authorities. Establish such a committee for all installations that have ongoing IRP response actions beyond the PA/SI stage.

EPA may make available to interested groups Technical Assistance Grants (TAG) of up to \$50,000 (or more for multiple sites). Community groups can use these grants to obtain assistance in interpreting technical information about the nature of hazards at NPL sites, the RI/FS, the ROD, the RD, the selection and construction of the RA, O&M activities, and removal activities. EPA determines the

eligibility of groups applying for a TAG. Tell groups interested in applying for a TAG to contact the EPA for help.

7.2.5 Comment Review

The summary of comments (Responsiveness Summary) that you prepared (see Section 7.2.3) becomes part of the ROD or Decision Document (see Table 7-2). Before any remedial action begins, you must publish a notice of the availability of this document. The ROD must be accompanied by a discussion of any significant changes made to the Proposed Plan.

7.2.6 Citizen Suits

The importance of maintaining open communications with the public cannot be overemphasized. Remember that CERCLA Section 310 allows any citizen to sue any person or government agency allegedly violating any standard, regulation, conditions, requirement, or order that becomes effective pursuant to this Act. Part of your job is to establish an **atmosphere of cooperative interaction** that enables you to discover and remedy any public misconceptions that can lead to citizen suits.

Table 7-2

THE ROD PLANNER

Activities	Dates
Draft RI/FS	
Draft FS Fact Sheet	
Final FS Fact Sheet	
Mail Fact Sheet	
Run Newspaper Article	
Start Public Comment Period	
Public Meeting Dry Run	
Public Meeting	
End Public Comment Period	
Responsiveness Summary	
ROD Signed	

KEY TIME FRAMES TO REMEMBER:

Prepare Draft and Final FS Fact Sheet	4 weeks
Print FS Fact Sheet	8-10 days
Mail FS Fact Sheet	3 days before the public comment period
Prepare and Publish Public Meeting Notice	1 week
Public Comment Period	21-30 days
Dry Run for Public Meeting	1 week in advance of public meeting

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Appendix A

Environmental Leadership letter 17 Apr 1991



DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
WASHINGTON, D.C. 20330

17 APR 1991

REPLY TO
ATTN OF AF/CC

SUBJECT: Environmental Leadership

TO: ALMAJCOM/CC

1. Despite steady improvements in environmental protection, the Air Force must do more, now. We must move past the study stage into the action phases--training, prevention, and cleanup. Specific goals follow:

a. Complete cleanup of the past. Restore at least 10% of our hazardous waste sites annually with all sites completed by 2000.

b. Ensure our present operations comply with all federal, state and local environmental standards. No notices of violation is the measure of merit.

c. Prevent future pollution by reducing generation of hazardous wastes to as near zero as feasible.

d. Use the Environmental Impact Analysis Process to support decision making and to protect the environment.

e. Protect and enhance our natural resources including wetlands, historic sites and endangered species through sound stewardship and management.

2. Every member of the Air Force community is responsible for the safe, efficient use of our scarce resources in meeting the Air Force mission. Proper attention to the environment today will ensure that we can perform our mission in the future. I expect the Air Force to lead the DOD in environmental protection and compliance. Your support is essential in meeting that goal.

A handwritten signature in dark ink, appearing to read "Merrill A. McPeak", is written over a horizontal line.

MERRILL A. McPEAK, General, USAF
Chief of Staff

Appendix B

Appendix B
State Points of Contact

State Points of Contact

State	Region	Phone Number
Alabama	4	205-271-7700
Alaska	10	907-465-2600
Arizona	9	602-257-2300
Arkansas	6	501-562-7444
California	9	916-322-4203
Colorado	8	303-866-3311
Connecticut	1	203-566-2110
Delaware	2	302-736-5071
Florida	4	904-488-4805
Georgia	4	404-656-3500
Hawaii	9	808-548-6915
Idaho	10	208-334-5840
Illinois	5	217-782-3397
Indiana	5	317-232-3210
Iowa	7	515-281-6284
Kansas	7	913-296-1535
Kentucky	4	502-564-2150
Louisiana	6	504-342-9103
Maine	1	207-289-2811
Maryland	3	301-631-3086
Massachusetts	1	617-727-9800
Michigan	5	517-373-7917

Appendix B

State	Region	Phone Number
Minnesota	5	612-623-5320
Mississippi	4	601-961-5171
Missouri	7	314-751-8730
Montana	8	406-444-3948
Nebraska	7	402-471-2186
Nevada	9	702-885-4670
New Hampshire	1	603-271-3503
New Jersey	2	609-292-2885
New Mexico	6	505-827-2835
New York	2	518-457-1415
North Carolina	4	919-733-7015
North Dakota	8	701-224-2374
Ohio	5	614-644-2782
Oklahoma	6	405-271-4677
Oregon	10	503-229-5300
Pennsylvania	3	717-787-2814
Rhode Island	1	401-277-3434
South Carolina	4	803-734-5360
South Dakota	8	605-773-3151
Tennessee	4	615-741-3111
Texas	6	512-458-7541
Utah	8	801-538-6769
Vermont	1	802-244-7347
Virginia	3	804-786-4500
Washington	10	206-459-6170
West Virginia	3	304-348-2754

Appendix B

State	Region	Phone Number
Wisconsin	5	608-266-2121
Wyoming	8	307-777-7938
Puerto Rico	2	809-725-5140
Virgin Islands	2	

Appendix C

**Center for Environmental Restoration Education
4 Jan 91 letter**



DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

REPLY TO
ATTN OF DE

1 JAN 1991

SUBJECT Center for Environmental Restoration Education (CERE)

TO See Distribution

1. A Center for Environmental Restoration Education has been established at the AFIT School of Civil Engineering and Services. The purpose of the Center is to ensure that all USAF personnel involved in the Installation Restoration Program (IRP) receive the technical and management education required to perform their IRP-related tasks. The Center will disseminate information on IRP-related educational resources, work with MAJCOM training managers and IRP monitors to identify students needing education, and provide funds for students to access required education. Note that though the Center is based in the School of Civil Engineering and Services, students are not limited to the civil engineering career field. Students from legal, public affairs, bioenvironmental engineering, and contracting career fields will also need to access Center-sponsored education.

2. It is envisioned that after attending the basic Installation Restoration Program course at AFIT (MGT 021), students, depending on job requirements, will attend one or more courses offered through EPA, other government agencies, civilian universities, and private contractors. All courses which are required for a student to perform his IRP-related duties will be eligible for funding through CERE. The list at attachment 2 is a sampling of course titles, categorized by job, which may be appropriate for attendance through CERE. Note that attachment 2 is not meant to be a comprehensive list of courses, but merely an indication of the type of classes which may be needed by various individuals. Working together, students, their supervisors, MAJCOM training managers and IRP monitors, and CERE personnel, will help to ensure the right student gets to the right course.

3. Eventually, student quotas will be managed through the Training Management System. However, to get the program off to a quick start in FY 91, AFIT/DES, Wright-Patterson AFB OH 45433 (DSN 785-2157) will immediately begin accepting DD Forms 1556 which have been coordinated through both the MAJCOM training manager and the IRP monitor. If approved, the student's organization will be provided with a fund cite from CFRE so that orders can be cut. After attending the course, students will be asked to provide feedback to CERE personnel. This is especially critical this first year to help ensure we identify the most effective and appropriate courses to send our people to in the future. This first year, experienced personnel are also invited to attend courses to help with the course evaluation process.

Appendix C

4. A listing of catalogs which may prove useful in identifying courses is provided at attachment 3. Additional information regarding courses will be forwarded throughout the year. At AFIT, the CERE POC is Lt Col Mark Goltz, AFIT/DEV, DSN 785-8388. We look forward to working with you to help provide our IRP personnel with the education they need to do their jobs better.

Paul T. Foxworthy

PAUL T. FOXWORTHY, Lt Col, USAF
Acting Dean
School of Civil Engineering
and Services

- 3 Atch
1. Distribution List
2. Sample Course Listing
3. Course Catalogs

Appendix C

Fundamental Courses for Base/MAJCOM IRP Personnel

IRPM/Environmental Coordinator

Course Title	Length Days	Source*
Installation Restoration Program	4-1.2	AFIT
Hazmat Incident Response Operations	5	pg 31
Risk and Decisionmaking	2	EPA Inst pg 11
Comrel in Superfund: Concepts and Skills for Response Staff	2	pg 15
Alternate: Comrel at Fed Fac Sites	1-1	pg 24
Skills Dev in Negotiation of RCRA/CERCLA Disputes	1-1.2	pg 30
Alternate: Negotiations Skills Tng		EPA Inst pg 50
Intro to Groundwater Investigations	3	pg 15
RI/FS Workshop	2	pg 49
Sampling for Hazardous Materials	3	pg 7
Hazmat Treatment Technologies	4	pg 17
Construction Mgt Evaluation	3	pg 37
Admin Records for Selection of CERCLA Response Actions (Optional)	1	pg 43

Fundamental Courses for Bioenvironmental Engineers

Involved with the IRP

Course Title	Length Days	Source*
Installation Restoration Program	4-1.2	AFIT
Hazmat Incident Response Operations	5	pg 31
Risk and Decisionmaking	2	EPA Inst pg 11
Intro to Groundwater Investigations	3	pg 15
RI/FS Workshop (Optional)	2	pg 49
Sampling for Hazardous Materials	3	pg 7

Fundamental Courses for Contracting Personnel

Involved with the IRP

Course Title	Length Days	Source*
Contracting Avenues		TBD

* Page numbers refer to the EPA Office of Solid Waste and Emergency Response (OSWER) June 1990 Training Course Catalog

Appendix C

Fundamental Courses for Public Affairs Personnel

Involved with the IRP

<u>Course Title</u>	<u>Length (days)</u>	<u>Source*</u>
Installation Restoration Program	4-1/2	AFIT
RI/FS Workshop	2	pg 49
Comrel in Superfund: Concepts and Skills for Response Staff	2	pg 35
Alternate: Comrel at Fed Fac Sites	1-2	pg 24
Comrel during ROD Process	1	pg 35
Admin Records for Selection of CERCLA Response Actions (Optional)	1	pg 43

Fundamental Courses for Legal Personnel Involved

with the IRP

<u>Course Title</u>	<u>Length (days)</u>	<u>Source*</u>
Installation Restoration Program	4-1/2	AFIT
Skills Dev in Negotiation of RCRA/CERCLA Disputes	2-1/2	pg 50
Alternate: Negotiations Skills Tng		EPA Inst (pg 5
RI/FS Workshop	2	pg 49
Admin Records for Selection of CERCLA Response Actions (Optional)	1	pg 43
Intro to Superfund Enforcement Program	2	pg 47

Fundamental Courses for Engineering Design Personnel

Involved with the IRP

<u>Course Title</u>	<u>Length (days)</u>	<u>Source*</u>
Installation Restoration Program (Optional)	4-1/2	AFIT
RI/FS Workshop (Optional)	2	pg 49
Biomat Treatment Technologies	1	pg 17
Construction Mgt Evaluation	1	pg 37
Physical/Chem Treatment of Hazwastes	2	pg 13
Contracting Avenues		

* Page numbers refer to the EPA Office of Solid Waste and Emergency Response
OSWER June 1991 Training Source Catalog

Appendix C

Catalogs Containing VPP-Related Courses

1. EPA Office of Solid Waste and Emergency Response OSWER June 1990 Training Course Catalog.
2. Hazardous Material Information Exchange (HMIW) On-Line Catalog. Accessible via modem at 708-972-3275. Tech assistance available at 800-752-6367.
3. US Army Corps of Engineers Huntsville Division Proponent Sponsored Engineer Corps Training (PROSPECT) Catalog. Contact: 205-702-5621.
4. EPA Hazardous Material Incident Response Training Program Catalog, July 1990. Contact: 513-251-7776.

Page 1

APPENDIX D
Sources of Training

Sources of Training

Two major sources of environmental training for Air Force personnel are the Air Force Institute of Technology and the EPA. Other government and private agencies also offer courses particular to their areas of specialization.

For information about training courses offered by AFIT, contact:

Air Force Institute of Technology
School of Civil Engineering and Services
Wright-Patterson AFB, OH 45433-6583

AFIT is also responsible for establishing the Center for Environmental Restoration Education (CERE), another potential training resource.

For information about EPA courses, refer to the OSWER Training Course Catalog. A list of program and regional training contacts is included.

EPA Regional Representatives	
Region I Sharon Molden John F. Kennedy Federal Bldg. Room 2211 Boston, MA 02203 <i>Phone: FTS: 8-835-3390</i> <i>DD: (617) 565-3390</i>	Region VI Evelyn Daniels Allied Bank Tower 1445 Ross Avenue Dallas, TX 75202 <i>Phone: FTS: 8-255-6700</i> <i>DD: (214) 655-6700</i>
Region II Peter Ucker 26 Federal Plaza, Room 734 New York, NY 10278 <i>Phone: FTS: 8-264-6324</i> <i>DD: (212) 264-6324</i>	Region VII 726 Minnesota Avenue Kansas City, KS 66101 <i>Phone: FTS: 8-757-3720</i> <i>DD: (913) 236-3720</i>
Region III Donna Sutsko 841 Chestnut Street Philadelphia, PA 19107 <i>Phone: FTS: 8-597-1166</i> <i>DD: (215) 597-1166</i>	Region VIII Charles Brinkman 999 18th Street, Suite 500 Denver, CO 80202-2405 <i>Phone: FTS: 8-330-1489</i> <i>DD: (303) 293-1489</i>
Region IV Edmond Burks 345 Courtland Street, NE Atlanta, GA 30364 <i>Phone: FTS: 8-257-3016</i> <i>DD: (404) 347-3016</i>	Region IX Shirley Daniels 1235 Mission Street San Francisco, CA 94103 <i>Phone: FTS: 8-556-6281</i> <i>DD: (415) 556-6281</i>
Region V Pat Easley 230 South Dearborn Street Chicago, IL 60604 <i>Phone: FTS: 8-886-2775</i> <i>DD: (312) 886-2775</i>	Region X Julie MacLean (RCRA) 1200 Sixth Avenue Seattle, WA 98101 <i>Phone: FTS: 8-399-0955</i> <i>DD: (206) 442-0955</i>

EPA Regional Representatives (Continued)	
Region X Loretta Hrin (CERCLA) 1200 Sixth Avenue Seattle, WA 98101 Phone: FTS: 8-399-7154 DD: (206)442-7154	
Hazardous Materials Training	
Art Ball Environmental Response Div. USEPA 26 W Martin Luther King Drive Cincinnati, OH 45268 Phone: FTS: 8-684-7537 DD: (513) 569-7537	William Keffer Emergency Removal/ HazMat USEPA Region VII 726 Minnesota Avenue Kansas City, KS 66101 Phone: FTS: 8-757-3720 DD: (913) 236-3720

Headquarters Representatives	
<p>Marlene Suit Training Section Office of Solid Waste and Emergency Response USEPA (OS-110), Room 3603 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-382-4515 DD: (202)382-4515</p>	<p>Edward Gray Superfund Training Resp. Office of Solid Waste and Emergency Response USEPA (OS-110), Room 3603 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-382-4369 DD: (202) 382-4369</p>
<p>Cynthia Byron Office of Waste Programs Enforcement (RCRA/CERCLA) USEPA (OS-505), Room S269 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-475-7037 DD: (202) 475-7037</p>	<p>Judi Kane RCRA Regional/State Coordinator Office of Solid Waste USEPA (OS-342), Rm M-2812 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-382-2210 DD: (202) 475-2210</p>
<p>Steve Vineski Office of Underground Storage Tanks USEPA (OS-420), Room MLG-100 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-475-9723 DD: (202) 475-9723</p>	<p>Alex Wolfe RCRA Regional/State Coordinator Office of Solid Waste USEPA (OS-342), Room M-2812 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-382-2210 DD: (202) 382-2210</p>
<p>Jim Bachmaier Office of Solid Waste USEPA (OS-342), Room M-2812 401 M Street, S.W. Washington, DC 20460 Phone: FTS: 8-382-2222 DD: (202) 382-2222</p>	

Appendix

DSMOA/CA letter 12 July 1991



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C. 20330

12 JUL 1991

REF ID: A67037
CEVR

SUBJECT: Defense and State Memorandum of Agreement/Cooperative Agreement Program for State Technical Services (DSMOA/CA)

HQ AFDW/DEV	HQ AFLC/CEV	HQ AFRES/DEP
HQ AFSC/DEV	HQ ATC/DEE	HQ AFSPACECOM/DEP
HQ AU/DEE	HQ MAC/LEEV	NGB/DEV
HQ PACAF/DEP	HQ SAC/DEV	HQ TAC/DEV
HQ USAFA/DEP	HQ USAFE/DEP	

1. The purpose of this letter is to provide you with information regarding the Defense and State Memorandum of Agreement (DSMOA)/Cooperative Agreement (CA) Program. As you may already know, the DSMOA/CA program was initiated in FY90 with the Corps of Engineers, designated by the Office of the Deputy Assistant Secretary of Defense for the Environment (ODASD(E)), as the executive agent. This program was designed to reimburse states for their support of the Defense Environmental Restoration Program (DERP). An information paper about the program was developed by the Corps of Engineers, and is enclosed for your information (attachment 1). Effective June 1, 1991, the Corps assumed the lead roll in the DSMOA/CA program.

2. States participating in the DSMOA/CA program are initially requested to contact the appropriate military services point-of-contact for DERA or BRAC funding levels at installations within the state. The military services will either provide the state with cleanup cost information or will refer them to a point-of-contact for each installation within that state.

3. When the state contacts the installation, they will request information about the installation and the installations' environmental program (see attachment 2 for the specific type of information required). These requests should be answered in a timely manner. This information will assist the states in developing their application for funding. Please copy AF/CEVR on all information submitted to the states.

4. Once in the program, the state will submit a quarterly report of their activities to the U.S. Army Corps of Engineers (USACE). USACE plans to distribute one copy of each report to the appropriate service point-of-contact, plus copies to other appropriate organizations as specified by the services.

Appendix E

SUBJECT: Defense and State Memorandum of Agreement/Cooperative Agreement Program for State Technical Services

If you should have any questions or comments concerning this program, or the format or contents of the quarterly reports, they should be directed to Mr. Karl Kneeling or Mr. Jim Kenaston at HQ USAF/CEVR, commercial: (202) 767-4616 or DSN: 297-4616.

JC - info

JAMES M. OWENDOFF, LTC, USAF
Chief, Restoration Division
Directorate of Environmental Quality
Office of The Civil Engineer

3 Atchs.
1. Information paper
2. DSMOA/CA info. and requirements

Appendix E

Atch. 1

INFORMATION PAPER

CEMP-RI

11 June 1991

SUBJECT: Defense and State Memorandum of Agreement/Cooperative Agreement Program for State Technical Services

1. PURPOSE: To provide information on the Defense and State Memorandum of Agreement (DSMOA)/Cooperative Agreement (CA) Program for State technical services.

2. FACTS:

a. The Defense State Memorandum of Agreement (DSMOA)/Cooperative Agreement (CA) program was developed in order to involve states and territories in the cleanup of DoD installations through the Defense Environmental Restoration Program (DERP). States and territories are reimbursed for technical services they provide in support of these activities through a DSMOA and CA. In addition to fostering improved relations between the States, military services, defense agencies and DoD, this program supports the DoD wide goal of achieving more efficient cleanup and develops a new partnership for addressing the DoD environmental cleanup problems.

b. The Superfund Amendments and Reauthorization Act (SARA), Section 211 requires the Secretary of Defense to establish a program of environmental restoration at Department of Defense facilities which includes state participation. The program of environmental restoration is known as the Defense Environmental Restoration Program (DERP) and must conform with Sections 120 and 121 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). Section 211(d) also allows the Secretary of Defense to enter into agreements on a reimbursable basis with the States to support this cleanup effort.

c. Lengthy negotiations with DoD, the National Governors Association, the National Association of Attorneys General and the Association of State and Territorial Solid Waste Management Officials resulted in the development of a model DSMOA (54 FR 31358, July 28, 1989). The DSMOA provides the mechanism to involve States and Territories in DERP activities by establishing the terms and conditions by which States and Territories are reimbursed for technical support. Under the DSMOA, States may seek reimbursement for up to 1% of the Defense Environmental Restoration Account (DERA) expenditures for cleanup at all eligible installations within the State.

Atch. 1

Appendix E

Atch 1

SUBJECT: Defense and State Memorandum of Agreement/Cooperative Agreement Program for State Technical Services

d. Past costs at both NPL and non-NPL sites are included after October 17, 1986. Active DERP installations, Base Realignment and Closure (BRAC) and Defense Logistics stock fund sites are also eligible for reimbursement under this program.

Reimbursement is available through a CA.

e. In February 1990, the Commander, US Army Corps of Engineers, was designated as the Executive Agent for DoD to administer the processing and approval of the CA applications and distributing funds to the States. The Corps prepared a management plan in April 1990 and later that month, received the first CA application from Delaware. By the end of FY 90, DoD entered into 12 DSMOAs and awarded \$7.4 million to eleven states.

f. As of 10 June 1991, 25 States and 2 Territories have signed DSMOAs and the Corps has made 15 awards through the Cooperative Agreement process. For the remainder of this fiscal year we hope to have an additional 6 States and Territories participating in the program.

g. We have experienced improved relations between States and DoD as a result of this program. Long term benefits are clearly defined for both States and DoD through participation in this program. In addition, States can focus resources on DoD environmental cleanup, which fosters an improved working relationship between States and DoD in accomplishing our environmental goals.

h. This program should result in more expeditious support of on going Installation Restoration (IR) and BRAC environmental cleanup including timely reviews of documents since States can focus resources on the DoD program.

i. Attached for your information are some valuable points regarding the DSMOA/CA program as well as current status.

ART SHACTER

(202) 272-1176

Atch 1

Appendix E

Atch 1

Status of DSMOA/CA Program

11 June 1991
Status of CA Program

STATE	DATE CA SIGNED	ARMY	NAVY	INSTALLATION AIR FORCE	DLA
Alaska	080990	11	4	57	3
Alabama	050191	4	1	5	0
Arizona	*	5	1	7	0
California	092690	9	53	16	1
Delaware	061190	0	0	2	0
Florida	092690	0	8	7	0
Georgia	*	5	2	6	0
Idaho	042391	0	0	2	0
Illinois	092690	5	4	5	0
Indiana	*	0	0	0	0
Kentucky	*	4	1	1	0
Maine	*	0	0	0	0
Maryland	011791	5	7	2	0
Minnesota	*	0	0	0	0
Mississippi	081090	3	2	5	0
Missouri	*	4	0	4	0
Nevada	092690	1	1	1	0
New Mexico	092690	3	0	5	0
New York	*	5	3	5	0
N. Carolina	*	0	1	0	0
S. Carolina	*	0	0	0	0
Texas	*	6	7	13	0
Vermont	092490	0	0	1	0
Virginia	031891	10	13	2	1
West Virginia	091790	0	1	2	0
Wyoming	092690	0	0	2	0
American Samoa	*	0	0	0	0
Puerto Rico	*	0	1	1	0
INSTALLATIONS BY SERVICE		81	116	155	5
TOTAL --	357				

* Signed DSMOA's. CA not yet approved

ART SHACTER
CEMP-RI
(202) 272-1176

Atch 1

Appendix E

Atch 1

State Technical Personnel - Points of Contact

STATE	TECHNICAL POC	TECH POC NO
Alaska	JAN CARLILE	907-789-4746
Alabama	GARY ELLIS	205-271-7939
Arizona	BETTY MYBECK	602-257-2342
Calif./DHS	DAN WARD	916-324-2433
Calif./SWRCB	JOHN ADAMS	916-323-8312
Delaware	MILTON BECK	302-323-4540
Florida	ERIC NUZIE	904-488-0190
Georgia	TIM CASH	404-656-7802
Idaho	RANDY WALTON	208-334-5879
Illinois	STEVE DAVIS	217-782-6760
Indiana	SUE ESSERMAN	317-243-5164
Kentucky	PAT HAIGHT	502-564-6716
Maryland	MILT MARDER	301-631-3438
Mississippi	MARIO BARONI	601-961-5171
Missouri	HANS JUENGERMAN	314-751-2553
Nevada	DAVE MINEDEW	702-687-4670
New Mexico	DAVE MORGAN	505-827-2754
New York	JIM LISTER	518-457-3976
N. Carolina	LEE CROSBY	919-733-2801
S. Carolina	ALLEN TINSLEY	803-734-5200
Texas	ALLEN POSNICK	512-475-2298
Virginia	K.C. DAS	804-225-2811
Vermont	ROBERT FINUCANE	802-244-8702
Wyoming	SCOTT FORISTER	307-777-6183
West Virginia	RIAD TANNIR	304-348-2745
Puerto Rico	EILEEN VILLAFANA	809-767-8071

Atch 1

Atch 1

Some valuable points regarding the DSMOA/CA program:

What DoD components are included in this program?

A: The Army, Navy (including Marines), Air Force and Defense Logistics Agency (DLA) are included under the DSMOA/CA program and work with the States/Territories in providing cost information.

What Installations/Facilities are included in this program?

A: Those that are a part of the active Defense Environmental Restoration Program (DERP) (i.e. Installation Restoration Program) Base Realignment and Closure (BRAC) Phase I, and DLA installations that use Stock Fund for cleanup activities instead of DERA. State contact the installations to obtain cost information in arriving at their 1% cap as stipulated in the DSMOA.

What services are the States eligible to be reimbursed for?

A: These are seven basic areas covered for reimbursement:

1. Technical review of documents
2. State law/regulation (Applicable Relevant Appropriate Requirements) review/determination and identification
3. Site visits/split samples
4. Community relations
5. Technical review committee participation
6. Cooperative agreement preparation/administration
7. Any additional activities that the State would like DoD to cover (Negotiated on a State by State basis)

What are the major provisions in the DSMOA?

- A:
1. Provides funding to States for technical services at NPL & non-NPL sites. (Minimum \$50K/year for first 2 years)
 2. Allows for front end loading of up to 1/4 of the 1% in any given year
 3. Reimburses States for past costs incurred after 10/17/86
 4. Provides a total program including
 - one account to administer funds for all installations
 - flexibility to shift funds between installations
 - not installation specific funding
 5. Requires only minimal reporting requirements
 6. Provides bi-lateral dispute resolution procedures for non-NPL installations or NPL installations without interagency agreements
 7. Takes State funding issues out of IAG negotiations

Atch 1

Appendix E

Atch 1

How do we know what States/Territories are doing to support the program?

A: The States are required to prepare a quarterly report which contains a narrative summary of activities performed by the State. The first report is due 120 days after award is made and 30 days after the close of subsequent quarters. The report will be submitted to HQUSACE (CEMP-RI) for distribution to the services POC, Army MACOMs, Army Corps Divisions, Navy Engineer Field Divisions, and the Air Force Regional Environmental office for verification and comment.

How do the States/Territories make modifications to the DSMOA/CA?

A: The States/Territories can add installations at any time during the term of the CA through modification of Attachment A in the DSMOA. A request to re-estimate costs, however, can occur only once over the two year term of the CA.

How does this program expedite the environmental restoration cleanup effort?

A: Historically DoD had difficulties working with States and communities to resolve environmental restoration issues. The additional resources provided by this program is intended to foster a spirit of team work and cooperation to expedite the cleanup process.

Who should I contact for additional information on this program?

A: You should contact the Cooperative Agreement Team, Installation Restoration Branch, at the Corps of Engineers Headquarters. The telephone numbers are (202) 272-1176/77 or DSN 285-1176/77. The mailing address is:

Commander

US Army Corps of Engineers ATTN: CEMP-RI (Cooperative Agreement Team) 20 Massachusetts Avenue, N.W. Washington, D.C. 20314-1000

Atch 1

Atch 2

INSTALLATION BACKGROUND AND STATUS

The Installation Background and Status describes the installation history and status, to include location, size, population, and mission of the installation; environmental problems to include type and method of contamination, past and present disposal/ storage procedures, and current situation and potential impacts. Provides a list of sites and/or operable units per installation including the status of each site.

Attached for your information is a recommended outline to follow in preparing this report.

OUTLINE FOR INSTALLATION BACKGROUND AND STATUS

(Prepare a separate report for each installation covered under this program)

INSTALLATION NAME

1. Background Information.

a. Location: (Distance and direction from nearest large city or recognizable land feature).

b. Size: (Acres).

c. Population: (Include those living on the installation plus daily work population, military and civilian).

d. History: (A brief description of when the installation was established and any significant changes which have occurred over the years).

e. Mission: (A brief description of the major missions performed on the installation with emphasis on those missions having the most impact on the environment).

2. Environmental Issues.

(A brief narrative on the major environmental problems on the installation. Items to be covered should include type and method of contamination, past and present disposal/storage procedures, and current situation and potential impacts).

3. Site Status.

(A listing of the sites on each installation with the current status. Use one of the following four categories: Ongoing, Complete, Potential, To be Determined).

Atch 2

Appendix F

IRPIMS letter 14 December 1990



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC 20332-5000

14 DEC 1990

REPLY TO
ATTN OF LEEV

SUBJECT: Defense Environmental Restoration Account (DERA)

TO: Distribution List

1. The Congress is significantly increasing the funding support for the Defense Environmental Restoration Account (DERA) which funds the cleanup of sites that are contaminated with hazardous wastes. The Air Force is executing its portion of DERA through decentralized management. With the increased number of contractors and contracts, there is the need for quality control of test reports, laboratory results and reports.


2. The Human Systems Division (HSD) developed the Installation Restoration Program Information Management System (IRPIMS) to service this quality control function and to provide a historical database. Currently, only the contracts HSD has managed have information loaded into IRPIMS. After a briefing to HQ USAF/LEEV by HSD on the capabilities of IRPIMS to service IRP contracts Air Force wide, the decision was made to load information from all contracts. HSD has established the Environmental Information Management (EIM) program office to accomplish this task.

3. Measures now have to be taken to load IRP data from all of the service centers per HSD's technical requirements. Contracts with other service centers and contracting offices need to be selectively modified to provide environmental information to the EIM program office at HSD.

4. For all FY 91 contracts, to the maximum extent possible, the statement of work will be modified to task IRP contractors to prepare IRPIMS data files per HSD's technical and contractual guidance. The objective is to load only IRP data that has not previously been published in hard-copy report form. IRP data associated with existing contracts which have already resulted in the publication or draft of a report will be manually loaded into IRPIMS. HSD will evaluate with the MAJCOMs and service centers the procedure to provide data per a pilot study that will lay the technical guidance to be followed by each MAJCOM and service center.

Appendix F

5. Broad policy issues relating to IRPIMS should be addressed by Lt Col James Owendoff or Mr. Karl Kneeling, HQ USAF/LEEVR, at 297-4151 or (202)767-4151. Mr Philip Hunter will serve as the overall HSD point of contact for the administration of IRPIMS, DSN 240-9001 or at (800)821-4528 ext 281. Technical matters relating to the database, data loading, and software documentation should be addressed to the following HSD personnel: Capt Michael Stock or Mr. Richard Anderson at DSN 240-9001 or (800)821-4528 ext 295 and 229 respectively.


PETER WALSH, COL, USAF
Chief, Environmental Quality Division
Directorate of Eng & Svcs

3 Atchs

1. Distribution List
2. IRPIMS Tech Guidance
3. Contractual Guidance

GENERAL TECHNICAL GUIDANCE
AIR FORCE WIDE IMPLEMENTATION OF IRPIMS

1. All IRP contractors that have been tasked and approved to load IRPIMS will use the most current version of the IRPIMS Data Loading Handbook to prepare IRPIMS data files.
2. Contractors will be required to use the IRPIMS Contractor Data Loading Tool (CDLT), a PC software utility to prepare ASCII data files on floppy disk. These prepared files collectively make up the IRPIMS data submission.
3. Contractors will be subject to a qualifying process before they are allowed to generate IRPIMS data files. This qualifying process requires that the contractor be able to successfully load a Test Data Submission. Training is available to the contractor upon request.
4. All IRPIMS data files are required to be error-free before they are delivered to HSD. A PC software utility, the PC QA/QC Tool, will be made available to contractors so that they can verify format and technical compliance with the IRPIMS Data Loading Handbook. All data files delivered to the EIM Program Office will be electronically evaluated for format compliance and data integrity.
5. Contractors who have received approval to load IRPIMS data files will be required to deliver individual IRPIMS data files (e.g. analytical results, groundwater level data, etc.) in sequence according to a controlled time schedule.
6. Because IRPIMS was originally designed to serve the IRP Program Office and differences exist in sampling protocols (such as QA/QC procedures etc.) among the other IRP service centers, it will be necessary to analyze the data compatibilities between these separate organizations. In addition, HSD is not currently staffed at a level that would allow it to process large amounts of data from other service centers. Therefore, a pilot study to identify problems in data compatibility and other issues of concern will be necessary before electronic data can be accepted on a large scale.
7. HSD will work with the MAJCOMs and service centers to provide data for the pilot study. Each service center (excluding the IRP Program Office at HSD), will task two (2) of their contractors to load IRPIMS data for two (2) separate projects (separate delivery orders) per the attached contractual guidance. A maximum of ten (10) IRPIMS Data Management Deliverables will be evaluated by HSD as part of the pilot study.

Appendix F

8. Once the pilot study has been completed and HSD has acquired sufficient staff and facilities, the contractual guidance for data loading can be implemented to all IRP contractors across the Air Force.

9. MAJCOMs should start immediately sending hard-copy reports (excluding those projects previously managed by HSD) pertaining to Air Force bases identified on the National Priority List (NPL) and those bases slated for Round One Base Closure. These reports should be sent to the following address:

METRICA, Inc
ATTN: IRPIMS
8301 Broadway
Suite 215
San Antonio, Texas 78209

IRPIMS CONTRACTUAL GUIDANCE
FOR
NEW IRP CONTRACTS

1. The contractor shall establish a data management program to meet the data deliverable requirements of the Installation Restoration Program Information Management System (IRPIMS). The contractor shall be responsible for recording field and laboratory data into a computerized format as required by the most current version of the IRPIMS Data Loading Handbook (mailed under separate cover).

2. In order to perform this task, the contractor shall have available the following minimum microcomputer hardware and software configuration:

IBM PC-AT (80286 Based, 8 MHZ minimum) microcomputer or functional equivalent, configured with a hard disk of at least 30 MB capacity that is dedicated to IRPIMS data loading tasks, one floppy disk drive (minimum of 360KB), 640KB of RAM, and MSDOS Version 3.3 or higher. No memory-resident software should be loaded in order that the maximum amount of memory is available on the system. A color monitor with an adapter capable of a resolution of 640 x 480 pixels (minimum of EGA standard) will be useful but is not required. A 80287 math coprocessor is advised but is not required.

This equipment shall be used by the contractor for all data entry and error-checking procedures.

3. The contractor shall use the current version of the IRPIMS Contractor Data Loading Tool (CDLT), a PC software utility (mailed under separate cover), to prepare ASCII data files on floppy disk.

4. The contractor shall use the most current version of the IRPIMS PC QA/QC Tool (mailed under separate cover), an error-checking utility, to evaluate all data submissions (including the Test Data Submission, paragraph 5.b below) for compliance with the IRPIMS Data Loading Handbook.

5. The contractor shall be required to go through a qualifying process before the IRPIMS data submissions are prepared. The qualifying process shall consist of the following:

a. Up to two (2) consecutive days of training will be provided to the contractor upon request. This training will cover IRPIMS data loading procedures, the use of software utilities for data entry and data integrity, and other issues

Appendix F

associated with the IRPIMS Data Loading Handbook. The contractor shall provide the Government at least 30 calendar days notice to allow the training to be scheduled. Training will be given at the IRP Program Office, Brooks AFB, Texas.

5. The contractor shall prepare a Test Data Submission using an IRPIMS Test Report (mailed under separate cover) using the CDLT. The contractor shall provide HSD with the Test Data Submission after it has been loaded. The contractor shall be considered qualified to load IRPIMS data when they are able to submit an error-free submission. Any errors identified by HSD in the submission shall be corrected by the contractor.

6. Each file delivered by the contractor will be electronically evaluated by HSD for format compliance and data integrity in order to verify acceptance. All files delivered by the contractor are required to be error-free (based on the error-checking results of the PC QA/QC Tool) and in compliance with the IRPIMS Data Loading Handbook.

7. The contractor shall be responsible for the accuracy and completeness of all data submitted. All data entered into the IRPIMS data files and submitted by the contractor shall correspond exactly with the data contained in the original laboratory reports and other documents associated with sampling and laboratory contractual tasks.

8. Upon receiving approval to load IRPIMS data (per paragraph 5.b), the contractor shall prepare the IRPIMS data files using IRP project data as instructed in the IRPIMS Data Loading Handbook. Individual IRPIMS data files (e.g. analytical results, groundwater level data, etc.) shall be delivered by the contractor to HSD in sequence according to a controlled time schedule as identified in the current version of the IRPIMS Data Loading Handbook.

9. All contractor data deliverables shall be sent to:
IRP Program Office
ATTN: IRPIMS Data Management
HSD/YAQ
Brooks AFB, TX 78235-5000

10. All requests for training and other inquiries shall be made to:

IRP Program Office
ATTN: Environmental Information Management
Capt Michael Stock/Mr Richard Anderson
(Tel extensions 295, 229 respectively)
HSD/YAQ
Brooks AFB, TX 78235-5000
(512) 536-9001
800) 821-4528
(800) 284-0957
DSN: 240-9001

Appendix G

Form 1391

Appendix G

1. COMPONENT AIR FORCE		FY 1993		MILITARY CONSTRUCTION PROJECT DATA		2. DATE 15 MAY 92	
3. INSTALLATION AND LOCATION ARLINGTON AFB, NY				4. PROJECT TITLE SOIL REMOVAL SITE SS-017			
5. PROGRAM ELEMENT DERA		6. CATEGORY CODE 800-000		7. PROJECT NUMBER THWA927002		8. PROJECT COST (\$000) 3.150	
9. COST ESTIMATES							
ITEM				U/M	QUANTITY	UNIT COST	COST (\$000)
SOIL REMEDIATION SITE SS-017				CY	850	3.180	2.686
SUPPORTING FACILITIES							5
SITE IMPROVEMENTS				LS			(5)
SUBTOTAL							2.681
CONTINGENCY (10%)							.268
TOTAL CONTRACT COST							2.949
SUPERVISION, INSPECTION AND OVERHEAD (6.0%)							.182
TOTAL REQUEST							3.132
TOTAL REQUEST (ROUNDED)							3.150
10. Description of Proposed Construction							
<p>This removal action at site SS-017 (Bldg 2774) consists of excavation of contaminated soil, transportation to a disposal facility, treatment by incineration, site restoration with clean backfill, topsoil, and seeding. Further included is final confirmatory sampling and analysis to verify that an acceptable level of residual contamination has been achieved.</p>							
11. Requirement							
<p>PROJECT: To eliminate human health risks via removal of soil contaminated from solvent spills at Bldg 2774, a former hazardous waste storage area designated as site SS-017 in the Installation Restoration Program (IRP).</p> <p>REQUIREMENT: This removal action is required to prevent further migration of chlorinated solvents in the soil precluding potential groundwater contamination, remove risk of direct human exposure, and preclude more costly future cleanup costs that will occur from further solvent migration.</p>							

Appendix G

1. COMPONENT AIR FORCE	FY 1993	MILITARY CONSTRUCTION PROJECT DATA	2. DATE 15 MAY 82
3. INSTALLATION AND LOCATION ARLINGTON AFB, NY			
4. PROJECT TITLE SOIL REMOVAL SITE SS-017		5. PROJECT NUMBER THWA927002	
<p>CURRENT SITUATION: The former hazardous waste accumulation point referred to as SS-017, located at Bldg. 2774, operated from 1960 to 1987. Various hazardous wastes, including chlorinated/nonchlorinated solvents, and fuels were stored at this site pending proper disposal. Soil sampling analysis indicates elevated levels of polyaromatic hydrocarbons, chlorinated and nonchlorinated solvents, phenols, and lead. Of extreme concern is the sampling analysis indicating 23,600 ppm of dichlorobenzene in the upper soil layers. IRP investigations have revealed contamination has migrated downward to a depth of 3.5 feet.</p> <p>IMPACT IF NOT PROVIDED: The possible effects on human health will continue to be of grave concern. As the contamination continues to migrate, the removal action costs will continue to rapidly escalate. The potential exists for contaminants to ultimately affect the ground water aquifer at this site.</p> <p>ADDITIONAL: Site Code: SS-017; This is an IRP RA Project Priority 1; ADPM Score: 23.3; CONTRACTING AGENT: Base Contracting.</p> <p>I have reviewed this requirement and certify that it meets the eligibility criteria for the use of DERA funds.</p> <p>I. M. Boss, Lt. Col. USAF Base Civil Engineer</p>			

DD FORM 1391c
DEC 78

PREVIOUS EDITIONS MAY BE USED INTERNALLY
UNTIL EXHAUSTED

PAGE NO

Appendix G

FY93 IRP NARRATIVE
PROJECT NUMBER: VKAG917003
PROJECT TITLE: Multi Site Focused RI

DATE: 15 May 92 ORIGINAL (X)
REVISION ()

1. INSTALLATION: ARLINGTON AFB, NC
2. TYPE OF STUDY: PA PA/SI SI X RI RI/FS FS EE/CA RD RA
IRA LTM LTO S&A

PURPOSE: The purpose of this Focused RI is to further determine the nature and extent of the contamination and the potential for threat to the public health, welfare, and the environment, develop and evaluate potential remedies that will permanently and significantly reduce the threat, select a cost-effective remedial action alternative which mitigates the threat, and achieve the consensus of the EPA, state, and local authorities.

ITEMS: X LITERATURE SEARCH X WORK PLAN DEVELOPMENT
X REPORT DEVELOPMENT X SOIL SAMPLING X GROUND WATER SAMPLING X SURFACE WATER SAMPLING X SOIL GAS SURVEY
X GEOPHYSICAL SURVEY X AQUIFER TESTING X TREATABILITY STUDY/PILOT STUDY X RISK ASSESSMENT X EVALUATION OF REMEDIAL ALTERNATIVES ENGINEERING DESIGN
BID SPECIFICATIONS X COMMUNITY RELATIONS SUPPORT
X ADMINISTRATIVE RECORD SUPPORT PERIODIC GROUND WATER MONITORING OPERATIONS AND MAINTENANCE SUPERVISION & ADMINISTRATION
OTHER:

3. BACKGROUND: This narrative concerns eight IRP sites with soil and groundwater contamination. According to the PA/SI IRP documents (1982) five of the sites were formerly known as sites 14 and 15. Site 14 was later broken into subsites ST-01, SD-02, SD-03, and SS-05. Site 15 later became site SS-04. These sites are located in the Bulk Fuel Storage Area of Seymour Johnson AFB. It has been documented that leakage from the fuel distribution system (lines and hydrant) was detected as early as 1978. A spill of approximately 400,000 gallons of JP-4 is documented to have occurred in the Bulk Fuel Storage Area in November 1980. This area was originally assigned a HARM score of 75. Studies to date have confirmed that the extent of soil and groundwater contamination is such that remedial action is required. This judgment is based on the presence of 11 inches of free product floating on the surface of the shallow aquifer. Also included in this narrative are three landfills that were identified during Round I (PA/SI). Landfill #1 was operated from 1941 to 1946 and received incinerator ash, industrial waste, and general refuse during that period. Landfill #3 was operated from 1961 to 1970 and received general refuse, coal ash, tank sludge, spent filters, paint residues, and solvents. Landfill #4 was installed in 1970. A small portion of this landfill still accepts wood and concrete debris. This practice will be discontinued prior to remedial action. In its early life, however, it received general refuse, tank sludge, coal ash, and spent filters. It is suspected that these landfills will require leachate collection systems and caps in order to prevent the further contamination of soil and groundwater. This action is required in order to comply with state and federal environmental regulations.

PROJECT NUMBER: VKAG917003
(con't)

EXAMPLES OF HAZARDOUS MATERIALS AT THESE SITES
(Underlined substances = Haz Mats Relative To This Narrative)

<u>Acetic acid</u>	<u>Cyanide</u>	<u>Methyl ethyl ketone (MEK)</u>
<u>Stripper/residue</u>	<u>DDT</u>	<u>Diesel fuel</u>
<u>Mineral oils</u>	<u>Sulfuric acid</u>	<u>Algae/slime</u>
<u>Dimethyl foramide</u>	<u>Monomethyl hydrazine</u>	<u>Synthetic turbine oil</u>
<u>Aliphatic naptha</u>	<u>Dry cleaning solvent</u>	<u>Motor oil</u>
<u>Tank cleaning sludge</u>	<u>Anoline</u>	<u>Engine oil</u>
<u>Napthalene</u>	<u>Toluene</u>	<u>AVGAS</u>
<u>Ethylene glycol</u>	<u>Paint thinner</u>	<u>Transformer oil</u>
<u>Battery acid</u>	<u>Gasoline</u>	<u>Parts cleaner</u>
<u>Transmission fluid</u>	<u>Bearings grease</u>	<u>Heating oil</u>
<u>PD-680</u>	<u>Trichloroethane (TCA)</u>	<u>Bluing salts</u>
<u>Hydraulic oil</u>	<u>Perchloroethylene</u>	<u>Trichloroethylene (TCE)</u>
<u>Boiler feedwater</u>	<u>Hydrochloric acid</u>	<u>Pesticides/containers</u>
<u>Turbine oil treatment</u>	<u>Incinerator ash</u>	<u>Photographic chemicals</u>
<u>Used batteries</u>	<u>Break fluid</u>	<u>Lead</u>
<u>Varsol</u>	<u>Cadmium solution</u>	<u>Kerosene</u>
<u>PS-661 solvent</u>	<u>Waste paint/containers</u>	<u>JP-4 Jet Fuel</u>
<u>Carbon cleaner</u>	<u>Lacquer</u>	<u>Refrigeration oil</u>
<u>Xylene</u>	<u>Casing and propellant</u>	<u>Lubrication oil</u>
<u>Rifle bore cleaning Sol</u>	<u>Zylo emulsion</u>	<u>Chromic acid solution</u>
<u>Mercury</u>	<u>Sodium hydroxide</u>	<u>7808 oil</u>
<u>Cleaning solutions</u>	<u>Methanol</u>	<u>Spray booth wastewater</u>
<u>Coolingwater/tower treatment</u>	<u>Methyl isobutyl ketone</u>	<u>Stack scrubbing waste</u>

REGULATORY BASIS:

STATE LAW/REGULATION: NC Pollution Control Act

FEDERAL LAW/REGULATION: The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Sections 120a4/b/c/d/e2/f/i, 117, 121, 113k. Superfund Amendments and Reauthorization Act (SARA) Of 1986 Sections 211, 2701, 2703, 2705, and 2706. The National Contingency Plan (NCP). Executive Order (EO) 12580 Sections 2 and 8.

ENFORCEMENT BASIS: FFA OTHER: _____

DESCRIPTION OF CURRENT STATUS: At the end of the RI/FS the RI portion was rejected by the state of North Carolina. The reason for the rejection was cited as being due to the fact that the Public Health Risk Assessment was done according to guidelines established by EPA. North Carolina does not recognize the Public Health Risk Assessment concept. According to North Carolina state law; if contamination is above MCL's, no matter how far removed from the public it is, it must be remediated unless a variance is granted by the state.

CLEANUP ACTION LEVELS IF KNOWN: Drinking Water Standards

IMPACTS IF NOT APPROVED: X ENFORCEMENT X MISSION X HEALTH RISK

OTHER: _____

FOR DESIGN ONLY: DPM SCORE: _____ DECISION DOCUMENT SIGNED: _____

ESTIMATED AWARD DATE: 15 July 93

Appendix G

PROJECT NUMBER: VKAG917003
(con't)

- | <u>SITE ID</u> | <u>SITE DESCRIPTION</u> | <u>SITE PRIORITY</u> | <u>SITE COST</u> |
|----------------|-------------------------|----------------------|------------------|
| ST-01 | Fuel Line System | 1B | \$ 50.0K |
| SD-02 | Drainage Ditch | 1B | \$ 50.0K |
| SD-03 | Drain Pipe Outfall | 1B | \$ 50.0K |
| ST-04 | Fuel Hydrant System | 1B | \$ 50.0K |
| SS-05 | Tank Farm Area | 1B | \$ 50.0K |
| LF-06 | Landfill #4 | 1B | \$ 75.0K |
| LF-08 | Landfill #1 | 1B | \$ 75.0K |
| LF-16 | Landfill #3 | 1B | \$100.0K |
5. ESTIMATED COST: \$500.0K
6. MULTI YEAR FUNDING PROFILE: RA In FY93: \$ 8,000.0K
LTO In FY94: \$ 200.0K
LTO In FY95: \$ 100.0K
LTO In FY96: \$ 100.0K
LTO In FY97: \$ 100.0K
Final DD: \$ 4.0K
7. WORK SCHEDULE: N/A
8. CONTRACTING AGENT: X COE _ HSD _ HAZWRAP _ USGS _ NAVY _ BKO
9. I have reviewed this requirement and certify that it meets the eligibility criteria for use of DERA funds.

I.M. Boss, Lt. Col. USAF
Director, Environmental Programs

Appendix G

PROJECT NUMBER: RD927008
PROJECT TITLE: RI MULTI SITES

DATE: 15 May 92 ORIGINAL (X)
REVISION ()

1. INSTALLATION: ARLINGTON AFB, NC
2. TYPE OF STUDY: PA PA/SI SI X RI RI/FS FS EE/CA RD RA
IRA LTM LTO S&A

PURPOSE: The purpose of this Limited Remedial Investigation is to provide enough information to determine if contamination is present at these sites and at what concentration.

ITEMS: X LITERATURE SEARCH X WORK PLAN DEVELOPMENT
X REPORT DEVELOPMENT X SOIL SAMPLING X GROUND WATER SAMPLING
X SURFACE WATER SAMPLING X SOIL GAS SURVEY X GEOPHYSICAL SURVEY
AQUIFER TESTING TREATABILITY STUDY/PILOT STUDY
RISK ASSESSMENT EVALUATION OF REMEDIAL ALTERNATIVES
ENGINEERING DESIGN BID SPECIFICATIONS
COMMUNITY RELATIONS SUPPORT X ADMINISTRATIVE RECORD SUPPORT
PERIODIC GROUND WATER MONITORING
OPERATIONS AND MAINTENANCE SUPERVISION & ADMINISTRATION
OTHER:

3. BACKGROUND: This project includes the following sites:

3.1 ST-26, an area of contamination that came from a 3,000 gallon underground storage tank (UST), is located at the Bldg. 122 lift station. The tank was installed in 1955, taken out of service in 1974, and removed in 1988. This site is 100% DERA eligible. No IRP work has ever been done at this site. No evidence of contamination can be seen on the surface of the ground at this site. Soil borings, a soil gas survey, a shallow well in the center of the site and another well down gradient of groundwater flow should determine if contaminants are present below the surface of the soil or in the underlying aquifer.

3.2 ST-27, an area of contamination that came from a 3,000 gallon underground storage tank (UST), is located at the Bldg. 960 lift station. The tank was installed in 1955, taken out of service in 1984, and removed in 1988. This site is 100% DERA eligible. No IRP work has ever been done at this site. No evidence of contamination can be seen on the surface of the ground at this site. Soil borings, a soil gas survey, a shallow well in the center of the site and another well down gradient of groundwater flow should determine if contaminants are present below the surface of the soil or in the underlying aquifer.

3.3 LF-13, Landfill No. 2, was operated from 1960 to 1964 as a receptacle for general household refuse and industrial trash. A PA was done on this site under the IRP in 1981. The site was recommended for No Further Action even though no soil or groundwater samples were ever taken. We have come to the conclusion that any attempt to close out a landfill with no analytical data to back the decision is poor judgment. A geophysical survey, soil gas survey, soil, and groundwater sampling must be done at this site to determine if contaminants are present.

Appendix G

PROJECT NUMBER: RDRD927008
(con't)

3.4 LF-14, Landfill No. 5, was operated from 1969 to 1974 as a receptacle for general household refuse and industrial trash. A PA was done on this site under the IRP in 1981. The site was recommended for No Further Action even though no soil or groundwater samples were ever taken. We have come to the conclusion that any attempt to close out a landfill with no analytical data to back the decision is poor judgment. A geophysical survey, soil gas survey, soil, and groundwater sampling must be done at this site to determine if contaminants are present.

3.5 SD-23, the old CE paint shop at Bldg. 217, was operated from 1968 to 1987. Due to the duration of operation and changes in waste disposal practices since 1984 we have come to the conclusion that the majority of any contamination that may be at this site was released prior to 1984. This project is eligible for funding under the DERA Program.

EXAMPLES OF HAZARDOUS MATERIALS AT THESE SITES (Underlined substances = Haz Mats Relative To This Narrative)

Acetic acid	Cyanide	Methyl ethyl ketone (MEK)
Stripper/residue	DDT	Diesel fuel
Mineral oils	Sulfuric acid	Algae/slime
Dimethyl foramide	Monomethyl hydrazine	Synthetic turbine oil
Aliphatic naptha	Dry cleaning solvent	Motor oil
Tank cleaning sludge	Aniline	Engine oil
Napthalene	Toluene	AVGAS
Ethylene glycol	Paint thinner	Transformer oil
Battery acid	Gasoline	Parts cleaner
Transmission fluid	Bearings grease	Heating oil
PD-680	Trichloroethane (TCA)	Bluing salts
Hydraulic oil	Perchloroethylene	Trichloroethylene (TCE)
Boiler feedwater	Hydrochloric acid	Pesticides/containers
Turbine oil treatment	Incinerator ash	Photographic chemicals
Used batteries	Break fluid	hydroxide
Varsol	Cadmium solution	Kerosene
PS-661 solvent	Waste paint/containers	JP-4 Jet Fuel
Carbon cleaner	Lacquer	Refrigeration oil
Xylene	Casing and propellant	Lubrication oil
Rifle bore cleaning Sol	Zygo emulsion	Chromic acid solution
Mercury	Sodium hydroxide	7808 oil
Cleaning solutions	Methanol	Spray booth wastewater
Coolingwater/tower treatment	Methyl isobutyl ketone	Stack scrubbing waste

REGULATORY BASIS:

STATE LAW/REGULATION: NC Pollution Control Act

FEDERAL LAW/REGULATION: CERCLA/NCP

ENFORCEMENT BASIS: ☐ FFA ☒ OTHER: TO BE DETERMINED

DESCRIPTION OF CURRENT STATUS: USTs at Bldgs 960 and 122 have been removed along with some contaminated soil. Landfills 2 and 5 were listed for no further action in the PA/SA (1981); no sampling was accomplished as part of that initiative. No work has been done at Bldg 217.

CLEANUP ACTION LEVELS IF KNOWN: UNKNOWN

IMPACTS IF NOT APPROVED: ☒ ENFORCEMENT ☐ MISSION ☐ HEALTH RISK

OTHER:

FOR DESIGN ONLY: DPM SCORE: _____ DECISION DOCUMENT SIGNED: N/A

ESTIMATED AWARD DATE: 30 March 93

Appendix G

PROJECT NUMBER: RDRD927008
(con't)

- | | <u>SITE ID</u> | <u>SITE DESCRIPTION</u> | <u>SITE PRIORITY</u> | <u>SITE COST</u> |
|----|---|----------------------------|----------------------|------------------|
| 4. | ST-26 | UST Bldg 122 Lift Station | 1B | \$ 150.0K |
| | ST-27 | UST Bldg 960 Lift Station | 1B | \$ 150.0K |
| | LF-13 | Landfill #2 | 1B | \$ 100.0K |
| | LF-14 | Landfill #5 | 1B | \$ 100.0K |
| | SD-23 | Bldg 217 Old CE Paint Shop | 1B | \$ 50.0K |
| 5. | ESTIMATED COST: | | | <u>\$ 550.0K</u> |
| 6. | MULTI YEAR FUNDING PROFILE: FY92: RI \$ 550.0K
FY93: FS \$ 450.0K
FY93:RD/RA \$3,000.0K | | | |
| 7. | WORK SCHEDULE: GOAL IS TO COMPLETE RI IN 12 MONTHS | | | |
| 8. | CONTRACTING AGENT: <input checked="" type="checkbox"/> COE <input type="checkbox"/> HSD <input type="checkbox"/> HAZWRAP <input type="checkbox"/> USGS <input type="checkbox"/> NAVY <input type="checkbox"/> BKO | | | |
| 9. | I have reviewed this requirement and certify that it meets the eligibility criteria for use of DERA funds. | | | |

I.M. Boss, Lt. Col. USAF
Director, Environmental Programs

Appendix H
Data Collection Information

Data Collection Information Sources

Information Source	Hazardous Waste Sources	Migration Pathways			Receptors
		Subsurface	Surface	Air	
U.S. EPA Files	X	X	X	X	X
U.S. Geological Survey ^a		X	X		
U.S. DOA, Soil Conservation Service ^b		X	X		
U.S. DOA, Agricultural Stabilization and Conservation Service		X	X		
U.S. DOA, Forest Service			X		X
U.S. DOI, Fish and Wildlife Agencies ^c					X
U.S. DOI, Bureau of Reclamation	X	X	X		
U.S. Army Corps of Engineers	X				
Federal Emergency Management Agency ^d			X		
U.S. Census Bureau					X
National Oceanic and Atmospheric Administration				X	
National Technical Information Service ^e	X	X	X	X	X
State Environmental Protection or Public Health Agencies	X	X	X	X	X

(Continued)

Information Source	Hazardous Waste Sources	Migration Pathways			Receptors
		Subsurface	Surface	Air	
State Geological Survey ^a		X	X		
State Fish and Wildlife Agencies					X
Local Planning Boards		X	X	X	X
County or City Health Departments	X	X	X	X	X
Town Engineer or Town Hall	X				X
Local Chamber of Commerce	X				X
Local Airport				X	
Local Library		X			X
Local Well Drillers		X			
Sewage Treatment Plants	X	X	X		
Local Water Authorities		X			X
City Fire Departments	X	X	X	X	

(Continued)

Information Source	Hazardous Waste Sources	Migration Pathways			Receptions
		Subsurface	Surface	Air	
Regional Geologic and Hydrologic Publications		X	X		
Court Records of Legal Action	X				
Department of Justice Files	X				
State Attorney General Files	X				
Facility Records	X				
Facility Owners and Employees ^d	X	X			X
Citizens Residing Near Site ^d	X	X	X	X	X
Waste Haulers and Generators ^d	X				
Site Visit Reports	X		X	X	X
Photographs	X		X		X
Preliminary Assessment Report	X	X	X	X	X
Field Investigation Analytical Data	X	X	X	X	
FTT/TAT Reports	X	X	X	X	X

(Continued)

Information Source	Hazardous Waste Sources	Migration Pathways			Reception
		Subsurface	Surface	Air	
Site Inspection Report	X	X	X	x	X
HRS Scoring Package	X	X	X	X	X
EMSL/EPIC (Environmental Monitoring Support Laboratory/Environmental Photographic Information Center)	X		X		X

^a Local Offices are usually at the County Seat, USGS, Reston, VA 703-648-4000.

^b Includes county soil survey reports from Soil Conservation Service, U.S. DOA 202-447-3760.

^c State Wildlife Agencies, USDI, US Fish and Wildlife Service, Washington, DC 202-208-5634.

^d The Federal Emergency Management Agency publishes floodplain maps.

^e National Technical Information Service, Springfield, VA 703-487-4660.

^f Climate of the States (Ruffner, Frederick G., Vol. 2, 3 ed, Gale Research Co., Detroit, MI 1985.

^g Interviews require lead agency concurrence.

Appendix I
Administrative Record

**Document Distribution to
Administrative Record and Regulators**

Document	Remedial	Removal
Preliminary Assessment Report ¹	R	R
Site Inspection Report ¹	R	R
Relevant removal documents (if removal action completed or ongoing at the site)	R	R
Chain of custody forms	R	R
Raw data that have gone through QA/QC	R	R
Data summary sheets	R	S
Sampling and Analysis Plan (SAP)	R	S
Quality Assurance Project Plan (QAPP)	R	S
Field Sampling Plan (FSP)	R	S
Engineering evaluations	S	R
Cost analysis documents	S	R
Final data summary sheets of technical models used to evaluate the site	R	R
Work Plan and subsequent amendments	R	S
Final RI/FS Report ¹	R	S
Any factual data relating removal or RA selection; relevant telephone logs; relevant public meetings	R	R
Memoranda on site-specific major policy and legal interpretations	R	R
Guidance documents; technical sources	R	R
Endangerment Assessment (if conducted by EPA)	R	S

Appendix I

Document	Remedial	Removal
Health Assessment (if conducted by ATSDR)	R	S
Community Relations Plan (NPL site only) ¹	R	²
Public comments on draft and final RI/FS Report or removal action; AF response	R R	R R
Copies of any notices to State and EPA	R	R
Transcripts of any required public meetings	R	R
Action Memorandum (and any amendments)	S	R
Proposed RA and a brief analysis ¹	R	S
ROD ¹	R	S
ROD amendments; comments and AF responses	R	S
Relevant documents generated during a RCRA corrective action, if applicable	R	S
Documents relating to the State's involvement; any comments	R	R
Interagency Agreement	R	S
Affidavits or other sworn statements of expert witnesses	R	S
Five year post-closure monitoring report	S	R

R Document inclusion in Administrative Record required.

S Document inclusion in Administrative Record suggested, not required.

¹ Document must be submitted to EPA and State regulators.

² If removal action is longer than 120 days.

Index

INDEX

A-106 4-5
Administrative Record 2-4, 3-12, 4-5, 5-32, 5-66, 5-98, 7-2, 7-3, 7-4, 7-5,
7-6
AFCEE 2-6, 6-2
AFCESA 2-7
AFIRM 2-7
AFIT 2-7, 7-5
Alternatives 3-12, 3-13, 4-9, 5-1, 5-36, 5-38, 5-52, 5-53, 5-57, 5-61, 5-66,
5-67, 5-72
ARARs 1-1, 1-7, 3-1, 3-12, 3-13, 3-16, 3-18, 3-20, 5-3, 5-36, 5-37, 5-43,
5-44, 5-45, 5-52, 5-57, 5-58, 5-61, 5-70, 5-85, 5-89, 5-91, 5-97
Basic ordering agreement 6-5
Bidding
 -sealed 6-12
 -two-step sealed 6-13
Budgeting 2-4, 4-1, 4-11, 4-12, 4-14, 5-78, 5-100, 6-11
CERCLA 1-2, 1-6, 3-1, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15,
3-16, 3-17, 5-13, 5-14, 5-25, 5-30, 5-39, 5-69, 5-94, 5-99
Citizen suits 7-7
Cleanup 1-1, 1-2, 1-3, 3-6, 3-17, 3-20, 4-4, 5-8, 5-52, 5-55
Closeout 1-1, 1-2, 1-3, 1-7, 3-5, 3-6, 3-17, 4-2, 4-4, 5-12, 5-27, 5-38,
5-49, 5-58, 5-71, 5-75, 5-77, 5-85, 5-90, 5-92, 5-97, 5-98, 5-99
Community relations plan 2-4, 3-12, 5-38, 5-58, 5-86, 7-1, 7-2, 7-3, 7-4,
7-5
Conceptual site model 5-43
Concurrent activities 5-77
Construction 5-13, 5-78
Contract negotiation 5-82
 -competitive 6-14
 -noncompetitive 6-14
Contract types 6-1, 6-2, 6-3, 6-5, 6-7, 6-8, 6-9
 - basic ordering agreement 6-5
 - cost reimbursement 6-5
 - definite delivery agreement 6-4
 - fixed price 6-5, 6-6
 - indefinite delivery agreement 5-11, 6-5
 - requirements 6-5
 - task ordering agreement 6-5
Contracting officer's representative 6-2
Control measures 3-2
Cost estimating 4-10, 4-11, 4-13, 5-17, 5-78, 5-73
Critical path management 5-11, 5-78

Index

Data quality objectives 5-37, 5-39, 5-40, 5-41
D & N 1-3, 1-4, 5-12, 5-13, 5-14, 5-15, 5-98
DD 1-2, 1-3, 1-5, 1-7, 3-2, 3-7, 3-17, 5-27, 5-58, 5-59, 5-65, 5-66, 5-67, 5-98, 5-99
Decision document (see DD)
Defense Priority Model 4-9, 4-12, 5-81
Definite delivery agreement 6-4
DERP 3-3, 3-7, 3-9, 3-18, 3-23, 4-1
Design documents 5-83, 5-84
Discovery (see D & N)
Documentation 5-22, 5-26, 5-86, 5-102
Dose-response assessment 5-47, 5-48
DSMOA 2-5, 2-7, 2-8
E/C 5-23, 6-15
ECAMP 5-1, 5-2, 5-12, 5-21
Engineering evaluation/cost analysis 7-5
Environmental Protection Committee 2-2, 4-1, 5-4, 5-74, 5-99
Execution stage 1-2, 1-3, 1-4, 1-6, 3-8, 5-74, 6-10
Exposure assessment 5-46, 5-47, 5-48
Facility 3-2
Fact sheet 7-2, 7-4, 7-8
Fast-track 5-27, 5-56, 5-78, 5-79
Feasibility study (see FS)
FFA 1-2, 1-5, 1-6, 2-8, 3-2, 3-10, 3-11, 3-16, 5-31, 5-37, 5-65, 5-68, 5-69, 5-70
Field screening 5-41
Focused feasibility 5-29, 5-80
Form 1391 4-1, 4-11, 4-12, 4-13
FS 1-3, 1-4, 1-5, 3-2, 3-6, 3-9, 3-10, 3-21, 4-4, 5-4, 5-12, 5-22, 5-25, 5-26, 5-30, 5-31, 5-33, 5-35, 5-36, 5-37, 5-45, 5-49, 5-51, 5-52, 5-56, 5-58, 5-62, 5-65, 5-99, 7-2, 7-8
Funding 2-1, 2-5, 2-8, 2-9, 4-1, 4-2, 4-3, 4-9, 4-11, 4-13, 4-14, 5-67, 5-80
Health and safety 2-2, 2-4, 3-12, 5-2, 5-23, 5-26, 5-38, 5-44, 5-81, 5-82, 5-89
Health assessment 2-2, 5-30
HRS 1-4, 3-10, 4-3, 4-4, 4-9, 5-10, 5-19, 5-23, 5-25, 5-26, 5-27
IAG 1-2, 2-9, 1-5, 5-31, 5-65, 5-68, 5-69
Indefinite delivery agreement 6-5
Installation 3-3
Interagency agreement (see IAG)
IRP 1-1, 3-1, 3-3, 3-6, 3-7, 3-16, 3-18, 3-23, 4-5, 4-6, 5-1
IRPIMS 2-6, 4-6, 5-4, 5-40, 5-100

IRTCC 2-7**JA 2-2, 3-15, 4-2, 5-38, 5-75, 5-82, 5-86, 5-91, 5-92****Line items 4-1, 4-12, 4-13****Management options 5-5, 5-6, 5-7, 5-39, 5-84, 5-85, 5-87, 6-16****Monitoring 5-29, 5-49, 5-59, 5-71, 5-85, 5-89, 5-90, 5-92, 5-93, 5-94, 5-98, 5-100****Narrative 4-1, 4-3, 4-13****Natural resources trustee 5-22****NAVFACENGCOM 2-6****NCP 3-1, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 5-25****NEPA 3-1, 5-23, 5-25****Non-NPL 1-2, 1-7, 2-9, 3-7, 3-9, 3-10, 3-11, 5-12, 5-27, 5-32, 5-65, 5-66, 5-89, 5-98, 5-99****Notification (see D & N)****NPL 1-1, 1-7, 2-9, 3-7, 3-8, 3-9, 3-10, 3-11, 5-12, 5-27, 5-30, 5-31, 5-32, 5-64, 5-65, 5-66, 5-69, 5-89, 5-98, 5-99, 7-3****O&M 4-13, 5-85, 5-91, 5-92, 5-93, 5-95, 5-100****Operable unit 1-5, 3-4, 3-11, 3-12, 3-20, 3-21, 3-22, 3-23, 4-4, 5-37, 5-38, 5-39, 5-49, 5-57, 5-71, 5-78, 5-80, 5-90, 5-93, 5-95****PA 1-3, 1-4, 3-3, 3-6, 3-10, 3-11, 3-16, 4-3, 4-4, 5-12, 5-17, 5-18, 5-19 5-20, 5-12, 5-22, 5-23, 5-27, 5-28, 5-98****Performance specifications 5-73, 5-83, 5-84****Planning & investigation stage 1-2, 1-3, 1-4, 3-8, 5-8, 5-74, 6-9****Post-project activities 1-7, 3-8, 3-17, 5-71, 5-89, 5-90, 5-91, 5-92, 5-93, 5-98, 5-99****Predesign activities 5-76, 5-77, 5-78, 5-79, 5-80, 5-81, 5-82****Preliminary assessment (see PA)****Prioritization 2-5, 3-23, 4-7, 4-9, 5-39****Programming 2-1, 2-4, 4-1, 5-11****Proposed Plan 3-8, 5-58, 7-3, 7-6****Public affairs 2-2, 5-22, 5-38, 5-63, 5-74, 5-75, 5-82, 7-3, 7-4****QA/QC 5-76, 5-81, 5-85, 5-89****RA 1-3, 3-4, 3-7, 3-10, 3-12, 3-13, 3-17, 3-20, 3-21, 4-3, 4-4, 5-12, 5-58, 5-70, 5-71, 5-72, 5-73, 5-74, 5-75, 5-76, 5-77, 5-78, 5-81, 5-82, 5-83, 5-85, 5-89, 5-90, 5-91 5-99****RACER 4-10, 4-11, 5-12, 5-25, 5-78****RCRA 1-2, 1-6, 3-1, 3-8, 3-10, 3-11, 3-15, 3-16, 3-17, 5-14, 5-22, 5-25, 5-39****RD 1-3, 1-6, 3-3, 3-12, 3-17, 4-3, 4-4, 5-4, 5-12, 5-58, 5-61, 5-66, 5-70, 5-71, 5-73, 5-74, 5-75, 5-76, 5-77, 5-78, 5-80, 5-81, 5-82, 5-84, 5-86****Record of decision (see ROD)****Regional compliance office 2-8, 5-2, 5-69, 5-86****Regulations 3-18, 5-46, 5-74, 5-87**

Remedial design (see RD)
Remedial investigation (see RI)
Remedial action (see RA)
Removal 3-4, 3-12, 4-7, 4-8, 5-29, 5-38, 5-98
Response 3-4, 5-26, 5-31, 5-45, 5-59, 5-71
Responsiveness Summary 5-66, 5-69, 5-83, 7-2, 7-4, 7-5, 7-6, 7-8
RI 1-3, 1-4, 1-5, 3-4, 3-6, 3-9, 3-10, 3-11, 3-21, 4-3, 4-4, 5-4, 5-12, 5-22,
5-25, 5-26, 5-30, 5-31, 5-33, 5-35, 5-36, 5-37, 5-42, 5-45, 5-49, 5-51,
5-62, 5-65, 5-87
Risk assessment 3-2, 3-12, 4-4, 5-38, 5-39, 5-43, 5-45, 5-46, 5-48, 5-49,
5-59, 5-97
Risk characterization 5-47, 5-48
Risk management 5-48
ROD planner 7-8
ROD 1-2, 1-3, 1-7, 3-3, 3-7, 3-12, 3-17, 3-21, 5-12, 5-58, 5-62, 5-65,
5-66, 5-68, 5-69, 5-70, 7-8
Sample collection 1-5, 5-25, 5-26, 5-38, 5-41, 5-84, 5-85
SARA 3-7, 5-25
Schedule 4-3, 4-7, 4-12, 5-35, 5-51, 5-76, 5-77, 5-78, 5-79, 5-91
Scoping 3-12, 4-3, 5-33
Scorecard 1-1, 5-101
Service center 2-2, 2-5, 2-6, 3-5, 4-2, 4-3, 5-2, 5-4, 5-5, 5-6, 5-7, 5-8,
5-23, 5-89, 6-1, 6-2
SI 1-3, 1-4, 3-3, 3-6, 3-11, 3-16, 4-3, 4-4, 5-12, 5-17, 5-18, 5-19, 5-23,
5-24, 5-25, 5-26, 5-27, 5-28, 5-30, 5-31, 5-49, 5-98
Site 3-5
Site characterization 5-35, 5-36, 5-43
Site inspection (see SI)
SOW 2-2, 5-17, 5-26, 5-36, 5-37, 5-52, 5-56, 5-73, 5-76, 5-78, 6-2
SWMU 3-5, 3-17, 5-22, 5-25
Task ordering agreement 6-5
Team 5-2, 5-3, 5-35
Technical Assistance Grant 7-3, 7-6, 7-7
Technical Review Committee 2-9, 3-6, 5-4, 5-32, 5-74, 5-86, 7-1, 7-4, 7-6
Tools 3-21, 4-7, 4-10, 5-4, 5-40, 5-41, 5-74
Training 2-5, 5-82
Treatability studies 5-35, 5-38, 5-57, 5-58, 5-61
TSCA 3-10, 3-16
Two-step scenario 5-8, 5-9, 5-70, 5-73, 5-84, 5-89
Typical scenario 5-8, 5-9, 5-70, 5-73, 5-84, 5-89
UST 3-10, 3-11, 3-16
WIMS-ES 4-3, 4-4, 4-5, 4-9, 4-10, 5-4, 5-99